

# 关于蹄盖蕨科的一些属的分类问题

## ON SOME CONFUSED GENERA OF THE FAMILY ATHYRIACEAE

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在蕨类植物的文献中,蹄盖蕨科的若干属的分类学上的概念是极为混乱的。这种混乱的局面,究其原因,是由某些蕨类植物学家自己造成的。在这方面,美国蕨类学家 E. B. Copeland 是最为突出的一个。根据他的观点,正如英国蕨类学家 W. J. Hooker 和 J. G. Baker 二人在将近一个世纪以前对于水龙骨型的蕨类植物一样,蹄盖蕨型的植物好象在分类学上是一羣乱成一团的无法进行分类的植物,因此,他选择了一个最简单的办法来处理这羣植物,即把所有同这羣有关的植物不加区别地都归入了蹄盖蕨属 (*Athyrium* Roth),把几乎所有的属都作为蹄盖蕨属的异名,而完全没有认识到这羣植物的同形异源的复杂的本質,仅凭表面上的大致相似,把前人創立的許多近亲属都被否定了。他甚至不認識双盖蕨属 (*Diplazium* Sw.) 与蹄盖蕨属 (*Athyrium* Roth) 的区别,更不認識短腸蕨属 (*Allantodia* R.Br.) 与双盖蕨属的区别。他对于蹄盖蕨科的許多較小的属或单种的属,如角蕨属 (*Cornopteris* Nakai)、蛾眉蕨属 (*Lunathyrium* Koidz.)、毛子蕨属 (*Monomelangium* Hayata),等等,一概予以简单的拒絕承認,并說这些都不值得給予属一級的地位,或說这些是代表着畸形的植物,不足以作为建属的根据等等。在另一方面, Copeland 又把蹄盖蕨科的另外一些种类归入其他蕨类植物科的属中,这是令人难于理解的,例如他把植物学文献的一个經典的种, *Aspidium boryanum* Willd. 或称 *Dryopteris boryana* C. Chr. 归入了鳞毛蕨科的肋毛蕨属 (*Ctenitis* C. Chr.), 而却不知道这个种早在他的蕨属志 (*Genera Filicum*, 1947) 出版前八年已被另立为一个新属,介蕨属 (*Dryoathyrium* Ching) 并叫做介蕨 (*Dryoathyrium boryanum* Ching), 而且属于蹄盖蕨科,并不是他錯誤地認為属于鳞毛蕨科的植物。这种惊人的例子在他的著作中并不是什么个别的情况,乃是不胜枚举的。

本文的提出主要旨在试图确认前人在亚洲大陆上所发现的蹄盖蕨科的一些属的身份和分类上的地位,而这个区域的这些植物对 Copeland 本人来说是极为陌生的,正如他的著作所指出的那样。此外,本文还提出三个新属以便安排其他蹄盖蕨科的一些植物,这些植物直到目前一直是被不同的学者归入于一些不同的属,迄未获得分类上合式位置。

In the fern literature one often finds that the generic delimitation of the bulk of the athyrid ferns is confusing even to the fern specialists themselves, among whom Copeland is perhaps an extraordinary example. To him the athyrid ferns, like the

polypodiaceous ferns to Hooker and Baker a century ago, have appeared to be a despairing mess to classify, and, consequently, he too took an easy course by dumping practically all of the genera of authors of this homoplastic group of ferns in "*Athyrium*" in his *Genera Filicum*. He even did not recognize the distinctions of *Diplazium* Sw. from *Athyrium* Roth, of *Allantodia* R. Br. from *Diplazium*. He also flatly refused accepting such small genera or monotypic genus as *Cornopteris* Nakai, *Lunathyrium* Koidz., *Monomelangium* Hayata and others as "unworthy of generic status", or, as he often likes to call them as "aberrant ferns". On the other hand, it is likewise surprising to see that some of the well-known athyrid ferns were classified by him with genera to which they really do not belong, as, for example, the classical fern, *Aspidium boryanum* Willd., or better known as *Dryopteris boryana* C. Chr. was identified by him with *Ctenitis* (Gen. Fil. p. 123), in spite of the fact that *Dryoathyrium boryanum* (Willd.) Ching of the family *Athyriaceae* had been proposed long before his book was published.

The present paper has its aim chiefly to attempt affirming the validity of some of the athyrid genera of authors mainly from the mainland of Asia, Copeland's knowledge of which, as shown by his book, seems to be very much limited. In addition, a couple of new taxa is proposed here to accommodate some other groups of athyrid ferns, which have heretofore been kicked from one genus into another by different authors without a proper systematic position.

### 短腸蕨屬(*Allantodia* R. Br. emend.)

R. Br. Prodr. Fl. Nov. Holl. (1810) 149.

*Brachysorus* Presl, Epim. Bot. (1840) 70.—*Microstegia* Presl, l.c. 90.—*Athyrium* Milde, Bot. Zeit. (1866) 376 et Fil. Europ. et Atlant. (1867) 49, pro parte; Cop. Gen. Fil. (1947) 147, pro parte; Holttum, Fl. Mal. II, Ferns Mal. (1954) 540.—*Asplenium* subgen. *Pseudallantodia*, Clarke, Trans. Linn. Soc. ser. 2, Bot. I (1880) 495.—*Diplazium* Diels in Engl. u. Prantl, Nat. Pflanzenfam. I, iv (1899) 224; C. Chr. Ind. Fil. (1905) 227 et Suppl. I, II, III (1906—34).

短腸蕨屬(*Allantodia* R. Br.)是 R. Brown 在 1810 年創立的,并以 *Allantodia australis* 为这个属的模式。但当时并未获得植物学界的公認,除少数蕨类学家在狭义上支持原創立人的概念外,絕大多數蕨类学家认为这只是鉄角蕨属(*Asplenium* Linn.)的一个組成部分,沒有分立成属的必要。在当时蹄盖蕨(*Athyrium* Roth)也被当作鉄角蕨属的一个組成部分看待的。1866 年 J. Milde 首先承認蹄盖蕨属的独立性,在从鉄角蕨属中分立出来的同时,却把双盖蕨(*Diplazium* Sw.)和短腸蕨属都归入了蹄盖蕨属。1899 年 L. Diels 和 1905 年 C. Christensen 都承認双盖蕨属的独立性,而且把它从 Milde 的蹄盖蕨属中分立出来,但同时却把短腸蕨属仍归入双盖蕨属,直至現在,从未有人提出过異議。从 1908 年以来, E. B. Copeland 一直支持 Milde 的观点,把 Diels 和 Christensen 的双盖蕨属无条件的仍归并到蹄盖蕨属。这一做法在 1954 年也得到 R. E. Holttum 的响应,但絕大多數

的蕨类学家是站在 Diels 和 Christensen 这边的。双盖蕨属和蹄盖蕨这两个蕨属不仅在形态学和地理分布及发展(甚至地理发生)方面均有明显的区别,而且在细胞学上也是各不相同的(双盖蕨属的染色体  $n = 41$ , 而蹄盖蕨属的染色体  $n = 40$ ), 这些均足以证明 Milde 和 Copeland 二人的观点是不正确的。

当前的问题是短肠蕨属作为一个蕨属应否从双盖蕨属独立出来? 首先, 让我们扼要地讨论一下这两个属的异同之点。

双盖蕨属(*Diplazium* Sw.)的叶片通常为奇数一回羽状(有时为单叶或三出), 侧生羽片大, 通常 3—5 对, 阔披针形, 全缘或向上略有锯齿, 顶生羽片和侧生羽片同形, 同大, 通常为革质或厚纸质, 羽轴或主脉上面圆而隆起, 或略有浅纵沟, 两侧边钝圆, 基部不通入叶轴上面的浅纵沟内, 孢子囊群长綫形, 自羽轴外行, 直达叶边, 往往双生一脉。约 50 种, 主产热带亚洲和美洲, 中国现知 26 种, 产两广和云南东南部。

与双盖蕨属相反, 短肠蕨属(*Allantodia* R. Br.)的叶片二至三回(有时四回)羽状, 少为一回羽状, 并不为奇数羽状分裂(即向顶部为羽裂), 羽片从基部向上逐渐缩小, 革质, 少为厚纸质, 各回羽轴上面有 1 条深纵沟, 两侧边有高而直立(干后倒伏)的刀口状的薄边, 基部下侧下延, 纵沟彼此开口互通, 孢子囊群为粗而短的綫形或长圆形, 基部的往往双生一脉, 约 350 种, 产世界热带和亚热带, 少数达暖温带, 中国现知有 170 种。

从上述形态性状的对比, 不难看到两属除孢子囊群有时双生一脉外, 并无其它共同之点, 而孢子形态特性在近代蕨类植物的分类学上已经不是个重要依据, 这往往仅是形态发生上的趋同结果(叫做同形异源现象), 如果孤立的看, 并不足以表明二者的真正亲缘关系, 更不能作为分属的标准。因此, 短肠蕨属和双盖蕨属在系统发育上有一定的联系, 但把它们分立为两个属, 不仅在形态学上有足够的根据, 而且在实际工作中也是很方便的。

虽然双盖蕨属和短肠蕨属都是泛热带的蕨属, 但后者的分布区远较前者为广泛, 它的许多种类从热带推进到亚热带的低地, 已成为相当广温性的植物, 而前者的分布区则仅限于高温高湿的热带地区。

根据孢子囊群的性状, 短肠蕨属可分为如下的两个组:

### I. 短肠蕨组

Sect. I. *Allantodia*.——*Brachysorus* Presl, Epim. Bot. (1849). 70.——*Asplenium* subgen. *Pseudallantodia* Clarke, Trans. Linn. Soc. ser. 2, Bot. I(1880) 495.

孢子囊群短, 卵圆形或长圆形, 通常单生于叶脉基部上侧(偶有生于叶脉近顶处), 被肠衣状的薄囊群盖包围, 呈膨胀的腊肠形或卵圆形, 成熟时从背面破裂, 露出孢子囊群。

组的模式: *Allantodia australis* R. Br.

根据孢子囊群的着生位置, 又可分为如下两系:

1. 边生系 Series *Marginales* Ching. 孢子囊群生于叶脉上部或近顶部, 颇靠近叶边。

系的模式: *Allantodia contermina* (Christ) Ching.

2. 腋生系 Series *Axillares* Ching. 孢子囊群生于叶脉基部腋间或中部以下。

系的模式: *Allantodia spectabilis* (Wall.) Ching.

### II. 双綫蕨组

Sect. II. **Microstegia** (Presl) Ching—*Microstegia* Presl, Epim. Bot. (1849) 90, pro genere, pro parte.

孢子囊羣綫形,生于叶脉下半部,或中部或几全部,下部的(尤其在裂片基部上侧一脉上的)双生一脉,被綫形而平坦的囊羣盖盖着,成熟时,从上侧边张开,露出全部孢子囊羣,或往往被压于发育的粗孢子囊羣下面,成熟时从背部破裂。

组的模式: **Allantodia aspera** (Bl.) Ching

本组又可分为如下三个系:

1. 一回羽叶系 Series 1. **Simplicipinnatae** Ching. 叶为一回羽状,羽片披针形,全缘至深羽裂。

系的模式: **Allantodia metteniana** (Miq.) Ching.

2. 二回羽叶系 Series 2. **Bipinnatae** Ching. 叶为二回羽状,羽片长圆形或长圆状披针形,小羽片全缘至深羽裂

系的模式: **Allantodia dilatata** (Bl.) Ching.

本系根据叶脉的分叉或不分叉,可分为如下两个羣:

1. 单脉羣 Grex 1. **Simplicivenosae** Ching. 裂片上的叶脉单一(或偶有二叉)。

羣的模式: **Allantodia dilatata** (Bl.) Ching.

2. 叉脉羣 Grex 2. **Furcativenosae** Ching. 裂片上叶脉概为二叉,有时三叉至四叉(或偶有单一)。

羣的模式: **Allantodia sikkimensis** (Clarke) Ching.

3. 三回羽叶系 Series 3. **Tripinnatae** Ching. 至少叶片的基部为三回羽状细裂,羽片长圆形。

系的模式: **Allantodia chinensis** (Bak.) Ching.

现在,根据上述系统,对已知的中国和邻邦的主要种类进行分类如下:

### **Allantodia** R. Br. emend.

As a natural genus, *Allantodia* was first founded by Robert Brown upon *Allantodia australis* in 1810. The genus was ever since, however, practically forgotten, because it did not receive a general recognition among the fern students of his time, who almost without exception considered it as not different from *Asplenium*, into which R. Brown's genus together with other related genera, such as *Athyrium* Roth and *Diplazium* Sw. were subsequently sunk by Mettenius, Hooker and Baker. J. Milde was the first who restored *Athyrium* Roth as a distinct genus from *Asplenium*, but while so doing he did not recognise *Diplazium* Sw. as distinct, but merged it with his *Athyrium*. That *Allantodia* R. Br. was badly understood by later writers is evidenced by C. B. Clarke, for example, who, while keeping other related species in *Asplenium*, created (Trans. Linn. Soc. ser. 2, Bot. I, 495, 1880) a new subgenus *Pseudallantodia* with two species as its constituents, namely, *Asplenium procerum* Wall. and *Asplenium bellum* Clarke. As a

matter of fact, Clarke's subgenus is perfectly identical with *Allantodia* R. Br. However, the situation remained unchanged until 1899, when L. Diels, later followed by C. Christensen, segregated *Diplazium* from *Athyrium* of Milde as a distinct genus with *Allantodia* R. Br. included in it. Since 1908 E. B. Copeland appeared to be the only supporter of Milde, who also swept all species of *Diplazium* of Christensen's Index Filicum known to him into *Athyrium*, alleging that there is no tenable distinction between the two genera, and his act was followed a few years ago by R. E. Holttum in Ferns of Malaya (1954) and still later by Ohwi in Japanese ferns (1957). In spite of all this, the majority of the fern students the world over, however, appear to stand by Christensen. As a matter of fact, *Diplazium* and *Athyrium* differ from one another not only in morphology and geographic center of development (or even possibly in origin), but also in cytology, as has recently been shown by L. Manton and others (*Diplazium* has a chromosome number  $n=41$ , while *Athyrium* has  $n=40$ ). It may be therefore safe to say that both Milde and Copeland are wrong in combining *Diplazium* with *Athyrium* according to the modern conception of fern taxonomy.

However, the question I should like to pose here is whether *Allantodia* R. Br. should be segregated as a distinct genus from *Diplazium* of Christensen's Index Filicum. My answer is in the affirmative, because the two genera likewise differ from one another in a number of morphological features of taxonomical significance. *Diplazium* Sw. as represented by *D. plantaginiifolium* (L.) Urban of Tropical America, *D. bantamense* Bl. and *D. donianum* (Mett.) Tard.-Blot of the Orient, is characterized by impari-pinnate (sometimes simple or trifoliolate) fronds of firm texture with few large similar pinnae (2—6 pairs or rarely more), much like the simple frond, by the upper side of pinna-costa with a very shallow or even obsolete longitudinal canal provided with low rounded edges on each side and not open to the rachis-groove at the point of insertion and by very long, linear and more often double sori extending from the costa to near the leaf margin. A pantropical genus of medium-size, credited with Antarctic origin by Copeland (Genera Filicum p. 148). On the other hand, the fronds in *Allantodia* R. Br. vary from simply to 2—3-pinnate with lateral pinnae gradually becoming shorter upwards and finally merged into a deltoid, acuminata pinnatifid apical part, with the pinna-rachis or costa or costule of pinnules (in the compound-leaved species) above deeply grooved and provided on each side with raised (becoming flat upon drying) knife-edged margins, which are decurrent along the rachis or costa of pinnae or costule of pinnule, and the grooves of rachis, pinna-rachis or of costa and costule are open to each other at the point of insertion, the leaf-texture is herbaceous or rarely chartaceous and the sori are thick, short-linear or ovoid-oblong only with the anterior basal one usually diplazioid. A large genus of about 350 species mostly in tropical and subtropical Asia with a few extending to the temperate regions in the Northern Hemisphere.

From the above brief comparison it is clearly evident that, besides an analogy in the soral characters, the two genera are in fact practically having nothing in common and that even the soral characters, as already pointed out elsewhere, are no longer considered today, as it was before, as an important criterion in the modern classification of ferns in general and of the athyrid ferns in particular, because they are often of a homoplastic nature and not an indication of affinity. And for practical purposes too, the two genera can as easily be distinguished as between *Allantodia* and *Athyrium*.

Following is a tentative scheme of classification of the genus *Allantodia* R. Br. in which it will be seen that Robert Brown's original generic concept of *Allantodia* has been so amplified as to include the bulk of the species of *Diplazium* of Christensen's Index Filicum as represented by *D. dilatata* Bl, *D. aspera* Bl. (*D. polypodioides* Bl.) and their allies, their short-linear sori and indusia being asplenoid or sometimes diplazoid but not allantodioid, as typified by Robert Brown's genus *Allantodia*. In view of the fact that the demarcation between the two soral types shades into one another so insensibly by the existence of intermediate forms that further dividing is not practical.

### Conspectus Generis Allantodiae R. Br.

Sect. I. **Allantodia**.—*Brachysorus* Presl, Epim. Bot. (1849) 70, pro genere.—*Asplenium* subgen, *Pseudallantodia* Clarke, Trans. Linn. Soc. ser. 2, Bot. I (1880) 495.

Soris crassis, ovatis vel breve oblongis, plerumque in basibus vel raro in partibus apicalibus venarum dispositis, semper indusiatis; indusiis griseo-membranceis, fornicatis, a primo soros omnino tegentibus, demum dorso irregulariter rumpentibus.

Typus sectionis: **Allantodia australis** R. Br.

Ser. 1. **Marginales** Ching, ser. nov. Soris ad partes apicales venarum prope marginem pinnularum dispositis.

Typus seriei: **Allantodia contermina** (Christ) Ching.—*Diplazium conterminum* Christ.

Ser. 2. **Axillares** Ching, ser. nov. Soris plerumque in axillis venarum prope costulas segmentorum dispositis.

Typus seriei: **Allantodia spectabilis** (Wall.) Ching.—*Asplenium spectabile* Wall.

Sect. II. **Microstegia** (Presl) Ching, sect. nov.—*Microstegia* Presl, Epim. Bot. (1849) 90, pro genere, pro parte.

Soris linearibus, elongatis vel crassiusculis, in latere anteriore venarum dispositis, indusiatis aut exindusiatis; indusiis linearibus, a primo soros includentibus, demum lateraliter apertis, persistentibus aut evanescentibus, basali antico saepe diplaziodeo.

Typus sectionis: **Allantodia aspera**. (Bl.) Ching.—*Diplazium asperum* Bl.

Ser. 1. **Simplicipinnatae** Ching, ser. nov. Lamina frondis infra apicem pinnatifidum simpliciter pinnata, pinnis integris vel saepe plus minusve

pinnatim divisis.

Typus seriei: **Allantodia metteniana** (Miq.) Ching. — *Diplazium mettenianum* (Miq.) C. Chr.

Ser. 2. **Bipinnatae** Ching, ser. nov. Lamina frondis infra apicem pinnatifidum abunde bipinnata, pinnulis integris vel saepe plus minusve pinnatifidis.

Typus seriei: **Allantodia dilatata** (Bl.) Ching. — *Diplazium dilatata* Bl.

Grex 1. **Simplicivenosae** Ching, grex nov. Venis in segmentis pinnularum simplicibus vel rarissime bifurcatis.

Typus gregis: **Allantodia dilatata** (Bl.) Ching.

Grex 2. **Furcativenosae** Ching, grex nov. Venis in segmentis pinnularum 2-3-furcatis.

Typus gregis: **Allantodia sikkimensis** (Clarke) Ching. — *Diplazium sikkimense* (Clarke) C. Chr.

Ser. 3. **Tripinnatae** Ching, ser. nov. Lamina frondis basi tripinnata.

Typus seriei: **Allantodia chinensis** (Bak.) Ching. — *Diplazium chinense* (Bak.) C. Chr.

The following known species are arranged according to the system proposed above.

## I. 短腸蕨組 Sect. **Allantodia**

### 1. 边生系 Series **Marginales**

**Allantodia contermina** (Christ) Ching, comb. nov. 边生短腸蕨

Basionym: *Diplazium conterminum* Christ, Journ. de Bot. XIX (1905) 67.

产于两广、福建、四川东部(巴县),生山谷密林下溪边。也分布于越南。

**Allantodia allantodioides** (Ching) Ching, comb. nov. 无柄短腸蕨

Basionym: *Diplazium allantodioides* Ching, Bull. Fan Mem. Inst. Biol. II (1931) 203, tt. 18, 19.

Synonym: *Diplazium virescens* var. *conterminum* Kurata, Kokuriku Journ. Bot. (1958) 77.

产于两广、福建、浙江南部、贵州、四川东部及东南沿海岛屿,生密林下。也产于日本。

### 2. 腋生系 Series **Axillares**

**Allantodia cavaleriana** (Christ) Ching, comb. nov. 薄叶短腸蕨

Basionym: *Athyrium cavalerianum* Christ, Bull. Acad. Géogr. Bot. Mans XX (1909) 174; C. Chr. Ind. Fil. Suppl. I (1913) 14; Tard.-Blot, Aspl. du Tonkin (1932) 86, t. 14, f. 1-2; Tard.-Blot et C. Chr. Fl. Indo-Chine VII, ii (1940) 279.

Synonym: *Diplazium cavalerianum* Ching, in herb.

产于四川(峨眉山)、贵州中部、云南南部(新平)。也分布于越南北部。

**Allantodia doederleinii** (Lueress.) Ching, comb. nov. 光脚短腸蕨

Basionym: *Asplenium doederleinii* Luerss. in Engl. Bot. Jahrb. IV (1883) 258.

Synonyms: *Diplazium doederleinii* Makino in Matsum. Ic. Pl. Koisikav. I (1913) t. 80.

*Athyrium doederleinii* Ohwi, Bull. Nat. Sci. Mus. Tokyo III (1956) 99.

*Diplazium aridum* Christ, Journ. de Bot. XXI (1908) 263.

*Athyrium nudicaule* Cop. Philip. Journ. Sci. III (1908) 278.

*Asplenium nudicaule* (Cop.) Dunn & Tutcher, Fl. Kwangt. & Hongk. (1912) 345.

*Diplazium nudicaule* C. Chr. Ind. Fil. Suppl. I (1913) 21.

产我国台湾、福建、两广、湖南、贵州、云南东南部。日本及其琉球和越南北部也有分布。

**Allantodia bella** (Clarke) Ching, comb. nov. 美丽短肠蕨

Basionym: *Asplenium bellum* Clarke, Trans. Linn. Soc. ser. 2, Bot. I (1880) 496, t. 63, f. 2; C. Chr. Ind. Fil. (1905) 102.

Synonyms: *Athyrium bellum* Ching in C. Chr. Ind. Fil. Suppl. III (1934) 40.

*Diplazium bellum* Ching, in herb.

产西藏南部(喜马拉雅山南坡), 生林下沟谷。也分布于锡金、不丹。

**Allantodia spectabilis** (Wall.) Ching, comb. nov. 密果短肠蕨

Basionym: *Asplenium spectabile* Wall. List (1828) n. 237, nom. nud. ex Mett. Farn-gatt. Aspl. (1859) 196.

Synonyms: *Athyrium spectabile* Presl, Tent. Pterid. (1836) 98; C. Chr. Ind. Fil. (1905) 146.

*Diplazium spectabile* Ching, Lingnan Sci. Journ. XV (1936) 278.

*Asplenium multicaudatum* Wall. List (1828) n. 229, nom. nud. ex Clarke, Trans. Linn. Soc. ser. 2, Bot. I (1880) 502; Hope, Journ. Bomb. Nat. Hist. Soc. CIV (1905) 263.

*Diplazium griffithii* Bedd. Ferns Brit. Ind. (1869) t. 325; Diels in Engl. u. Prantl, Nat. Pflanzenfam. I, iv (1899) 227; C. Chr. Ind. Fil. (1905) 233, non Moore, 1861.

*Diplazium jerdoni* Bedd. Ferns Brit. Ind. (1869) t. 327.

产我国云南西部, 生于林下沟边, 海拔 2000—2500 米。也分布于不丹、锡金、尼泊尔及印度北部。

**Allantodia kawakamii** (Hay.) Ching, comb. nov. 溪头短肠蕨

Basionym: *Diplazium kawakamii* Hay. Journ. Coll. Sci. Univ. Tokyo XXX (1911) 435; Ic. Pl. Form. IV (1914) 215, f. 147; C. Chr. Ind. Fil. Suppl. II (1917) 12.

Synonyms: *Athyrium kawakamii* C. Chr. Ind. Fil. Suppl. III (1934) 42.

*Athyrium allanticarpum* Rosenst. Hedwigia, LVI (1915) 335; C. Chr. Ind. Fil. Suppl. II (1917) 70.

*Athyrium procerum* sensu Tagawa, Acta Phytotax. et Geobot. X (1941) 278;



Ohwi, Fl. Jap. Pterid. (1957) 124, non Milde, 1866.

产我国台湾(台东、台南、阿里山、溪头、花蓮)。日本及其琉球也产之。

**Allantodia alata** (Christ) Ching, comb. nov. 狭翅短肠蕨

Basionym: *Athyrium alatum* Christ, Bull. Herb. Boiss. VI (1898) 963; C. Chr. Ind. Fil. (1905) 139.

Synonym: *Diplazium divaricatum* Ching, Bull. Fan Mem. Inst. Biol. II (1931) 208, t. 25; C. Chr. Ind. Fil. Suppl. III (1934) 73.

产云南东南部、贵州中部、广西西南部(龙州)。

**Allantodia yaoshanicola** Ching, nom. nov. 瑶山短肠蕨

Basionym: *Diplazium wangii* Ching, Bull. Fan Mem. Inst. Biol. X (1940) 177, non Ching, 1936.

特产广西东部大瑶山, 生林溪边。

**Allantodia procera** (Wall.) Ching, comb. nov. 高大短肠蕨

Basionym: *Asplenium procerum* Wall. List (1828) n, 2203, nom. nud. ex Clarke, Trans. Linn. Soc. ser. 2. Bot. I (1880) 495.

Synonyms: *Athyrium procerum* Milde, Bot. Zeit. (1866) 376; C. Chr. Ind. Fil. (1905) 45.

*Diplazium procerum* Ching, in herb.

*Asplenium umbrosum* var. *procerum* Bak. in Hook. et Bak. Syn. Fil. (1874) 489.

产西藏南部(喜马拉雅山地)。也分布于缅甸北部、印度北部、锡金、尼泊尔, 极为常见。

II. 双綫蕨組 Sect. **Microstegia** (Presl) Ching

1. 一回羽叶系 Series **Simplicipinnatae**

**Allantodia wichurae** (Mett.) Ching, comb. nov. 耳羽短肠蕨

Basionym: *Asplenium wichurae* Mett. Ann. Mus. Lugd. Bat. II (1866) 237; Hook. et Bak. Syn. Fil. (1874) 233.

Synonyms: *Diplazium wichurae* Diels in Engl. u. Prantl, Nat. Pflanzenfam. I, iv (1899) 226; C. Chr. Ind. Fil. (1905) 241.

*Athyrium wichurae* Ohwi, Bull. Nat. Sci. Mus. Tokyo III (1956) 101 et Fl. Jap. Pterid. (1957) 114.

广布我国东南各省, 向西达贵州及四川(峨眉山)。也产于朝鲜南部(济州岛)和日本及其琉球。

**Allantodia okudairai** (Makino) Ching, comb. nov. 假耳羽短肠蕨

Basionym: *Diplazium okudairai* Makino, Bot. Mag. Tokyo XX (1906) 84; C. Chr. Ind. Fil. Suppl. I (1913) 27.

Synonym: *Athyrium okudairai* Ohwi, Bull. Nat. Sci. Mus. Tokyo III (1956) 100 et Fl. Jap. Pterid. (1957) 114.

产贵州中部、四川西南部, 生林下岩石上; 也分布于日本。

**Allantodia lobulosa** (Wall.) Ching, comb. nov. 浅裂短肠蕨

Basionym: *Asplenium lobulosum* Wall. List (1828) n. 210, nom. nud. ex Mett. Farngatt. Aspl. (1859) 114; Hook. Sp. Fil. III (1860) 252.

Synonyms: *Diplazium lobulosum* Presl, Tent. Pterid. (1936) 114; C. Chr. Ind. Fil. (1905) 234.

*Asplenium longifolium* Don, Prodr. Fl. Nepal. (1825) 7; Hook. et Bak. Syn. Fil. (1874) 234, non Schrad, 1824.

*Diplazium longifolium* Moore, Ind. Fil. (1859) 141, 332; Diels in Engl. u. Prantl, Nat. Pflanzenfam. I, iv (1899) 226.

*Athyrium longifolium* Milde, Bot. Zeit. (1870) 354.

产云南西部及西北部;也分布于缅甸北部、印度北部、尼泊尔。

**Allantodia heterocarpa** (Ching) Ching, comb. nov. 异果短肠蕨

Basionym: *Diplazium heterocarpum* Ching, Lingnan Sci. Journ. XV (1936) 276.

特产于贵州中部。少见。

**Allantodia yuyangensis** (Ching) Ching, comb. nov. 酉阳短肠蕨

Basionym: *Athyrium yuyangense* Ching, Bull. Fan Mem. Inst. Biol. Bot. Ser. I (1940) 280.

Synonym: *Diplazium yuyangense* Ching, loc. cit. pro syn.

特产四川东南部(酉阳),生石洞中阴湿石灰性土上,海拔 900 米。

**Allantodia megaphylla** (Bak.) Ching, comb. nov. 大羽短肠蕨

Basionym: *Asplenium megaphyllum* Bak. Journ. Bot. (1890) 264.

Synonyms: *Diplazium megaphyllum* Christ, Bull. Herb. Boiss. VI (1898) 961; C. Chr. Ind. Fil. (1905) 235.

*Diplazium macrophyllum* Ching, Sinensia I (1929) 6 et Ic. Fil. Sinic. I (1930) t. 25, non Desv. 1827.

产我国台湾、广西西部、贵州南部及云南东南部;也分布于越南北部。

**Allantodia hirtipes** (Christ) Ching, comb. nov. 鳞轴短肠蕨

Basionym: *Diplazium hirtipes* Christ, Bull. Herb. Boiss. VII (1899) 252.

Synonyms: *Asplenium parallelorum* Bak. Kew Bull. (1906) 9.

*Diplazium parallelorum* C. Chr. Ind. Fil. Suppl. III (1934) 75.

*Diplazium pellucidum* Ching, Sinensia I (1929) 7 et Ic. Fil. Sinic. I (1930) t. 24.

*Diplazium insigne* Ching, Bull. Fan Mem. Inst. Biol. Bot. Ser. X (1940) 175.

产广西、湖南、贵州、云南东南部、四川南部;也产越南北部。

**Allantodia wangii** (Ching) Ching, comb. nov. 黄志短肠蕨

Basionym: *Diplazium wangii* Ching, Lingnan Sci. Journ. XV (1936) 281.

Synonym: *Diplazium submettenianum* Ching, Acta Phytotax. Sinica VIII (1959) 146, t. 16, f. 21.

特产于海南岛(儋县,南淋岭),生密林下。

**Allantodia pinnatifido-pinnata** (Hook.) Ching, comb. nov. 羽裂短肠蕨

Basionym: *Asplenium pinnatifido-pinnatum* Hook. Sp. Fil. III (1860) 238; Hook. et

Bak. Syn. Fil. (1874) 231.

Synonym: *Diplazium pinnatifido-pinnatum* Moore, Ind. Fil. (1861) 334; C. Chr. Ind. Fil. (1905) 237.

产海南岛及云南东南部(河口);也分布于越南、缅甸及印度北部。

**Allantodia metteniana** (Miq.) Ching, comb. nov. 麦氏短肠蕨

Basionym: *Asplenium mettenianum* Miq. Ann. Mus. Lugd. Bat. III (1867) 174.

Synonyms: *Diplazium mettenianum* C. Chr. Ind. Fil. (1905) 236.

*Athyrium mettenianum* Ohwi, Bull. Nat. Sci. Mus. Tokyo III (1956) 100 et Fl. Jap. Pterid. (1957) 128.

*Asplenium textori* Miq. Cat. Mus. Lugd. Bat. (1890) 126.

*Diplazium cavaleriei* Christ, Bull. Acad. Géogr. Mans (1904) 114.

*Diplazium lohfauiense* C. Chr. ex Wu, Wong et Pong, Bull. Dept. Biol. Sun Yat-sen Univ. No. 3 (1932) 154, t. 68.

*Diplazium yaoshanense* Tard.-Blot, Bull. Mus. Paris sér. 2, VI (1934) 115.

*Diplazium hanasiroi* Tagawa, Journ. Jap. Bot. XIV (1938) 107.

广布于我国东南各省,向南达两广,向西到贵州及四川;也产于日本及越南。

本种变异性很大,根据羽片大小及分裂度可分为如下三个变种。

**var. metteniana** 麦氏短肠蕨变种

产地同上。

**var. fauriei** (Christ) Ching, stat. nov. 麦氏短肠蕨小羽变种

Basionym: *Diplazium fauriei* Christ, Bull. Herb. Boiss. sér. 2, I (1901) 1015.

Synonyms: *Diplazium mettenianum* var. *fauriei* Tagawa, Acta Phytotax. et Geobot. I (1932) 88.

*Athyrium mettenianum* var. *fauriei* Ohwi, Fl. Jap. Pterid. (1957) 128.

产广东北部及福建;也分布于日本及越南。

**var. isobasis** (Christ) Ching, stat. nov. 麦氏短肠蕨尖裂变种

Basionym: *Diplazium isobasis* Christ, Bull. Herb. Boiss. sér. 2, IV (1904), 618.

Synonym: *Diplazium mettenianum* var. *isobasis* Tagawa, Acta Phytotax. et Geobot. I (1932) 88.

产我国台湾(高雄)及广东(罗浮山);也分布于日本。

**Allantodia yaoshanica** (Ching) Ching et C. H. Wang, comb. nov. 广西短肠蕨

Basionym: *Diplazium yaoshanicum* Ching, Bull. Fan Mem. Inst. Biol. Bot. Ser. X (1940) 176.

产于广西东部(大瑶山)及贵州中部,生林下沟中。

**Allantodia veitchii** (Christ) Ching, comb. nov. 疏羽短肠蕨

Basionym: *Athyrium veitchii* Christ, Bull. Acad. Géogr. Bot. Mans (1906) 123; C. Chr. Ind. Fil. Suppl. I (1913) 15.

产四川峨眉山及广东汕头以西山地,海拔 600—800 米。

**Allantodia viridescens** (Ching) Ching, comb. nov. 草绿短肠蕨

Basionym: *Diplazium viridescens* Ching, Acta Phytotax. Sinica VIII (1959) 146.

特产于海南島(白沙县,五指山),生山谷林下溪边,海拔 1200 米左右。

**Allantodia metcalfii** (Ching) Ching, comb. nov. 深裂短腸蕨

Basionym: *Diplazium metcalfii* Ching, Lingnan Sci. Journ. XV (1936) 277.

特产于广东北部(翁源)。少见。

**Allantodia griffithii** (Moore) Ching, comb. nov. 鑷形短腸蕨

Basionym: *Diplazium griffithii* Moore, Ind. Fil. (1861) 330; C. Chr. Ind. Fil. (1905) 233.

Synonyms: *Asplenium griffithii* Bak. in Hook. et Bak. Syn. Fil. (1865) 239.

*Athyrium griffithii* Milde, Bot. Zeit. (1870) 254; Bedd. Ferns Brit. Ind. Suppl. (1876) 12.

产于云南南部、广西南部、贵州南部,生林下阴处,海拔 1000 米;也分布于印度北部及越南北部。

**Allantodia incompta** (Tagawa) Ching, comb. nov. 疏裂短腸蕨

Basionym: *Diplazium incomptum* Tagawa, Acta Phytotax. et Geobot. III (1934) 35; H. Ito, Fil. Jap. Illustr. (1944) t. 152.

产我国台湾(台北,烏来)。日本琉球也产之。

**Allantodia hirsutipes** (Bedd.) Ching, stat. et sp. nov. 篳齿短腸蕨

Basionyms: *Diplazium stoliczkae* Bedd. var. *hirsutipes* Bedd. Handb. Ferns Brit. Ind. (1883) 182.

Synonyms: *Asplenium stoliczkae* Clarke, Trans. Linn. Soc. ser. 2. Bot. I (1880) 500, non *Diplazium stoliczkae* Bedd. 1876.

*Diplazium thelypteroides* Bedd. Ferns Brit. Ind. (1865) t. 68, non Presl, 1836.

产云南西南部(无量山)及西北部(貢山)。越南、緬甸北部、尼泊尔、錫金、不丹也有分布。

**Allantodia stoliczkae** (Bedd.) Ching, comb. nov. 卡西亚短腸蕨

Basionym: *Diplazium stoliczkae* Bedd. Ferns S. Ind. Suppl. (1876) 13, t. 361.

特产于印度北部。

**Allantodia sorzogonensis** (Presl) Ching, comb. nov.

Basionym: *Asplenium sorzogonense* Presl, Rel. Haenk. I (1825) 45.

Synonym: *Diplazium sorzogonense* Presl, Tent. Pterid. (1836) 114.

产南洋羣島。

## 2. 二回羽叶系 Series **Bipinnatae** Ching

### 1. 单脉羣 Grex **Simplicivenosae** Ching

**Allantodia matthewi** (Cop.) Ching, comb. nov. 闊片短腸蕨

Basionym: *Athyrium matthewi* Cop. Philip. Journ. Sci. III (1908) 278.

Synonym: *Diplazium grosselobatum* C. Chr. in Wu, Wong et Pong in Bull. Dept.

Biol. Sun Yatsen Univ. No. 3 (1932) 156, t. 69.

产两广及云南东南部,生沟边水湿处;也产越南北部。

**Allantodia petelotii** (Tard.-Blot) Ching, comb. nov. 褐柄短腸蕨

Basionym: *Diplazium petelotii* Tard.-Blot, Aspl. du Tonkin (1932) 66, t. 8, f. 3—6;  
C. Chr. Ind. Fil. Suppl. III (1934) 76; Tard.-Blot et C. Chr. Fl. Indo-Chine  
VII, ii (1940) 259.

产于云南东南部(河口),生密林下水湿沟底,常见。越南北部也产之。

**Allantodia petri** (Tard.-Blot) Ching, comb. nov. 彼得短腸蕨

Basionym: *Diplazium petri* Tard.-Blot, Aspl. du Tonkin (1932) 67, 181, t. 9, f.  
1—2; Bull. Mus. Paris, sér. 2, VI (1934) 114; C. Chr. Ind. Fil. Suppl. III  
(1934) 76; Tard.-Blot et C. Chr. Fl. Indo-Chine VII, ii (1940) 260.

Synonyms: *Athyrium petri* Ohwi, Fl. Jap. Pterid. (1957) 127.

*Athyrium platyphyllum* Cop. Philip. Journ. Sci. III (1908) 291, non Christ, 1906.

*Diplazium triangulare* Tagawa, Acta Phytotax. et Geobot. VII (1938) 79; H.  
Ito, Fil. Jap. Illustr. (1944) t. 158.

产我国台湾、海南岛、广西南部、云南东南部;也广布于越南北部、日本南部及菲律宾。

**Allantodia omeiensis** (Ching) Ching, comb. nov. 峨眉短腸蕨

Basionym: *Diplazium omeiense* Ching, Bull. Fan Mem. Inst. Biol. II (1931) 204;  
C. Chr. Ind. Fil. Suppl. (1934) 75.

产于四川峨眉山、湖南衡山、福建南平,生林下。

**Allantodia maxima** (Don) Ching, comb. nov. 大叶短腸蕨

Basionym: *Asplenium maximum* Don, Prodr. Fl. Nepal. (1825) 8; Hook. et Bak.  
Syn. Fil. (1867) 239, pro parte.

Synonym: *Diplazium maximum* C. Chr. Ind. Fil. (1905) 235.

产于云南西南部,生林下沟中;也分布于尼泊尔、锡金、不丹及印度北部。

**Allantodia crinipes** (Ching) Ching, comb. nov. 毛柄短腸蕨

Basionym: *Diplazium crinipes* Ching, Bull. Fan Mem. Inst. Biol. II (1931) 207, t.  
23, 24; Bull. Dept. Biol. Sun Yatsen Univ. No. 6 (1933) 25; C. Chr. Ind. Fil.  
Suppl. III (1934) 73.

广布于两广、海南岛、台湾及贵州南部;也产于越南及日本南部。

**Allantodia taiwanensis** (Tagawa) Ching, comb. nov. 台湾短腸蕨

Basionym: *Diplazium taiwanense* Tagawa, Acta Phytotax. et Geobot. VI (1936)  
259; Col. Illustr. Jap. Pterid. (1959) 138, t. 56, f. 306.

产于我国台湾(台东);也分布于日本南部诸岛屿。

**Allantodia virescens** (Kze.) Ching, comb. nov. 淡绿短腸蕨

Basionym: *Diplazium virescens* Kze. Bot. Zeit. (1848) 537; C. Chr. Ind. Fil. (1905)  
241.

Synonyms: *Asplenium virescens* Mett. Farngatt. Aspl. (1859) 191; Hook. et Bak.  
Syn. Fil. (1874) 237.

*Athyrium virescens* Ohwi, Bull. Nat. Sci. Mus. Tokyo III (1956) 100 et Fl. Jap.

Pterid. (1957) 127.

*Diplazium lutchuense* Koidz. Bot. Mag. Tokyo XXXVIII (1924) 106.

广布于长江以南各省,西达四川东部及贵州南部;也产于越南、日本及其琉球。

**Allantodia cyclobola** (Christ) Ching, stat. et sp. nov. **圆裂短肠蕨**

Basionym: *Diplazium latifolium* var. *cyclobolum* Christ, Bull. Herb. Boiss. sér. 2, IV (1904) 614.

Synonym: *Diplazium uraiense* Rosenst. var. *cyclobolum* Tagawa, Acta Phytotax. et Geobot. V (1936) 163.

产于我国台湾及海南岛,生林下阴处,海拔达 1000 米。少见。

**Allantodia dilatata** (Bl.) Ching, comb. nov. **膨大短肠蕨**

Basionym: *Diplazium dilatatum* Bl. Enum. Pl. Jav. (1828) 194; C. Chr. Ind. Fil. (1905) 231.

Synonyms: *Athyrium dilatatum* Milde, Bot. Zeit. (1870) 353.

*Asplenium latifolium* Don, Prodr. Fl. Nepal. (1825) 8, non Bory, 1803; Hook. et Bak. Syn. Fil. (1874) 239.

广布于我国南部及西南部,向西到四川。这东南亚热带雨林下常见的蕨类。

**Allantodia gymmogrammoides** (Kl.) Ching, comb. nov.

Basionym: *Asplenium gymmogrammoides* Kl. ex Mett. Farngatt. Aspl. (1859) 193, t. 16, f. 13—14.

Synonym: *Athyrium gymmogrammoides* Bedd. Ferns S. Ind. (1863) t. 156.

特产锡兰。

**Allantodia uraiensis** (Rosenst.) Ching, comb. nov. **瘦轴短肠蕨**

Basionym: *Diplazium uraiense* Rosenst. Hedwigia LVI (1915) 336.

特产我国台湾(台北、乌来)。

**Allantodia phaeolepis** (Tagawa) Ching, comb. nov. **褐鳞短肠蕨**

Basionym: *Diplazium phaeolepis* Tagawa, Acta Phytotax. et Geobot. V (1936) 259.

特产于我国台湾山地,海拔高达 2500 米。

**Allantodia aspera** (Bl.) Ching, comb. nov. **粗糙短肠蕨**

Basionym: *Diplazium asperum* Bl. Enum. Pl. Jav. (1828) 195; C. Chr. Ind. Fil. (1905) 228.

Synonyms: *Miorstegia aspera* Presl, Epim. Bot. (1849) 92.

*Athyrium asperum* Milde, Bot. Zeit. (1870) 353.

*Diplazium polypodioides* Bl. Enum. Pl. Jav. (1828) 194.

产于海南岛及云南南部;广布于印度支那及南洋羣岛和澳洲东北部。

**Allantodia calogramma** (Christ) Ching, comb. nov. **长果短肠蕨**

Basionym: *Diplazium calogramma* Christ in Lecomte, Not. Syst. I (1909) 45.

产于广西北部、四川东部、贵州、云南南部及东南部;越南及老撾也产之。

**Allantodia wheeleri** (Bak.) Ching, comb. nov. **短果短肠蕨**

Basionym: *Asplenium wheeleri* Bak. Ann. Bot. V (1891) 309.

Synonyms: *Diplazium wheeleri* Diels in Engl. u. Prantl, Nat. Pflanzenfam. I, iv (1899) 229; C. Chr. Ind. Fil. (1905) 203.

*Diplazium virescens* Tagawa, Col. Illustr. Jap. Pterid. (1959) 203, pro parte.

产于浙江及四川;也产于日本。少见。

**Allantodia yakumontana** (Tagawa) Ching, comb. nov.

Basionym: *Diplazium yakumontanum* Tagawa, Acta Phytotax. et Geobot. III (1934) 36.

特产日本(屋久岛,山地)。

## 2. 叉脉蕨 Grex *Furcativenosae*

**Allantodia squamigera** (Mett.) Ching, comb. nov. 鳞柄短肠蕨

Basionym: *Asplenium squamigerum* Mett. Ann. Mus. Lugd. Bat. II (1866) 239; Hook. et Bak. Syn. Fil. (1865) 237.

Synonyms: *Diplazium squamigerum* Matsum. Ind. Pl. Jap. I (1904) 304; C. Chr. Ind. Fil. (1905) 239.

*Athyrium squamigerum* Ohwi, Fl. Jap. Pterid. (1957) 128, t. 51, f. 283.

广布于华东、华中及华西,向东南至云南,向北达秦岭;也产于日本及印度。

**Allantodia himalayensis** Ching, stat. et sp. nov. 西藏短肠蕨

Basionym: *Asplenium polypodioides* var. *vestita* Clarke, Trans. Linn. Soc. ser. 2, Bot. I (1880) 501.

产于西藏南部(喜马拉雅山中部);也产于锡金。常见。

**Allantodia laxifrons** (Rosenst.) Ching, comb. nov. 疏叶短肠蕨

Basionym: *Diplazium laxifrons* Rosenst. Hedwigia LVI (1915) 337.

特产于我国台湾。少见。

**Allantodia torrentia** (Clarke) Ching, comb. nov. 狭裂短肠蕨

Basionym: *Asplenium torrentium* Clarke, Trans. Linn. Soc. ser. 2, Bot. I (1880) 500, t. 64.

Synonym: *Diplazium torrentium* Tard.-Blot, Aspl. du Tonkin (1932) 69; C. Chr. Ind. Fil. Suppl. III (1934) 77; Tard.-Blot et C. Chr. Fl. Indo-Chine, VII, ii (1940) 261.

产于云南西部(漾濞)。也分布于越南北部、缅甸北部及锡金。

**Allantodia gigantea** (Bak.) Ching, comb. nov. 大型短肠蕨

Basionym: *Gymnogramma gigantea* Bak. Journ. Bot. (1889) 177.

Synonyms: *Diplazium giganteum* Ching in C. Chr. Ind. Fil. Suppl. III (1934) 73.

*Diplazium flaccidum* Christ, Bull. Acad. Géogr. Bot. Mans (1906) 125.

产于湖北西部、四川峨眉山。少见。

**Allantodia hachijoensis** (Nakai) Ching, comb. nov. 薄盖短肠蕨

Basionym: *Diplazium hachijoense* Nakai, Bot. Mag. Tokyo XXXV (1921) 148; C. Chr. Ind. Fil. Suppl. III (1934) 74.

Synonyms: *Athyrium hachijoense* Ohwi, Bull. Nat. Sci. Mus. Tokyo III (1956) 100 et Fl. Jap. Pterid. (1957) 126.

*Diplazium siroyamense* Tagawa, Acta Phytotax. et Geobot. II (1933) 197; Ogata, Ic. Fil. Jap. VII (1936) t. 309.

产福建(武夷山)、贵州、四川及云南;也分布于朝鲜南部和日本及其琉球。

**Allantodia kappanensis** (Hay.) Ching, comb. nov. 少羽短肠蕨

Basionym: *Diplazium kappanense* Hay. Ic. Pl. Form. VIII (1919) 143, ff. 69—70.

特产于我国台湾。

**Allantodia nipponica** (Tagawa) Ching, comb. nov. 日本短肠蕨

Basionym: *Diplazium nipponicum* Tagawa, Acta Phytotax. et Geobot. II (1933) 197.

Synonym: *Athyrium nipponicola* Ohwi, Bull. Nat. Sci. Mus. Tokyo III (1956) 100.

特产于日本。

**Allantodia viridissima** (Christ) Ching, comb. nov. 深缘短肠蕨

Basionym: *Diplazium viridissimum* Christ in Lecomte, Not. Syst. I (1909) 45; C.

Chr. Ind. Fil. Suppl. I (1913) 28; III (1934) 77.

特产云南西部(大理以北)。

**Allantodia sikkimensis** (Clarke) Ching, comb. nov. 藏南短肠蕨

Basionym: *Asplenium sikkimense* Clarke, Trans. Linn. Soc. ser. 2, Bot. I (1880) 500, t. 65, f. 1.

Synonym: *Diplazium sikkimense* C. Chr. Contr. U.S. Nat. Herb. XXVI (1931) 304.

产于西藏南部(亚东);也产于越南及锡金。

**Allantodia leptophylla** (Bak.) Ching, comb. nov. 粗叶短肠蕨

Basionym: *Diplazium leptophyllum* Bak. ex Christ, Bull. Acad. Géogr. Bot. Mans (1902), 245, nom. nud.; C. Chr. Ind. Fil. (1905) 234.

产云南东南部及西部。少见。

**Allantodia succulenta** (Clarke) Ching, comb. nov. 肉质短肠蕨

Basionym: *Asplenium succulentum* Clarke, Trans. Linn. Soc. ser. 2, Bot. I (1880) 502, t. 64, f. 4.

Synonym: *Diplazium succulentum* C. Chr. Ind. Fil. (1905) 240.

产云南西部边境(莲山)。锡金喜马拉雅也产之。

**Allantodia pseudodoederleinii** (Hay.) Ching, comb. nov. 阿里山短肠蕨

Basionym: *Diplazium pseudodoederleinii* Hay. Ic. Pl. Form. VIII (1919) 145, ff. 71—72; C. Chr. Ind. Fil. Suppl. III (1934) 76.

特产于我国台湾(阿里山)。

3. 三回羽叶系 Series **Tripinnatae** Ching

**Allantodia pseudosetigera** (Christ) Ching, comb. nov. 长圆短肠蕨



Basionym: *Athyrium pseudosetigerum* Christ, Bull. Acad. Géogr. Bot. Mans (1907) 146; C. Chr. Ind. Fil. Suppl. I (1913) 15; III (1934) 43, pro parte.

特产于贵州,生石灰岩洞口。

**Allantodia taquetii** (C. Chr.) Ching, comb. nov. 东北短肠蕨

Basionym: *Diplazium taquetii* C. Chr. Bull. Acad. Géogr. Bot. Mans (1911) 69; Ind. Fil. Suppl. I (1913) 28.

产辽东半岛;朝鲜南部(济洲岛)也有分布。

**Allantodia bittynensis** (Tagawa) Ching, comb. nov.

Basionym: *Diplazium bittynense* Tagawa, Acta Phytotax. et Geobot. II (1933) 196.

特产于日本。

**Allantodia chinensis** (Bak.) Ching, comb. nov. 中华短肠蕨

Basionym: *Asplenium chinense* Bak. in Hook. et Bak. Syn. Fil. (1867) 237.

Synonyms: *Diplazium chinense* C. Chr. Ind. Fil. (1905) 229.

*Diplazium naganumanum* Makino, Bot. Mag. Tokyo XIII (1899) 14.

*Diplazium kodamai* Nakai, Bot. Mag. Tokyo XXVIII (1914) 84.

*Diplazium orientale* Rosenst. in Fedde, Repert. Sp. Nov. XIII (1914) 129.

产于华东、华中各省,向西至贵州及四川东南部;朝鲜南部(济洲岛)、日本及其琉球也产之。

**Allantodia prolixa** (Rosenst.) Ching, comb. nov. 双生短肠蕨

Basionym: *Diplazium prolixum* Rosenst. in Fedde, Repert. Sp. Nov. XIII (1913) 126; C. Chr. Ind. Fil. Suppl. II (1917) 12.

产于贵州及广西南部,生山谷中,海拔 500—1100 米。少见。

网蕨属, 新属

**Dictyodroma** Ching, gen. nov.

Genus novum ex affinitate *Diplaziopsis* C. Chr., rhizomate erecto, apice paleis iis *Diplazii* similibus vestito, radicibus teretibus crassis subcarnosis praedito. Frondibus fasciculatis, erectis, oblongis vel ovato-oblongis, longe stipitatis; laminis praeter terminalem simpliciter pinnatis, lobo terminali magno deltoideo acuminato, in parte inferiore pinnatifido, superiore lobulato, summa integro; pinnis liberis paucijugis oppositis vel suboppositis, sessilibus raro brevi-petiolatis, e basi aequaliter rotundata vel truncata late lanceolatis, acuminatis, margine integris vel crenato-lobulatis; nervis lateralibus costae utrinsecus aut obsoletis aut prominulis, venulis intermediis copiosis, reticulatim anastomosantibus, inter costam ad marginem areolas 3—4-seriatis, oblique elongatas sine venulis inclusis efficientibus; textura laminae herbacea, siccitate laete vel obscure viridi; stipitibus supra ut rachis et costa subtus pilis pluri-cellularibus crassis vermiformibus plus minus ferrugineo-hirsutis; rachibus supra solum leviter sulcatis, sulco racheos ad junctionem cum costa pinnae lateralis non aperto; costa pinnae praeterea supra tantum obscure sulcata, subtus distincte bisulcata. Soris linearibus, crassis quoad formam variis, 2—12 mm

longis, costae utroque latere plerumque biseriatis, sub angulo  $45^\circ$  erga costam inclinatis, asplenioides, iis venarum basium anteriorum saepius diplazioides, indusio anguste lineari plano brunneo membranaceo persistente; exosporis more *Diplaziopsis* anguste alatis.

Genus in regionibus subtropicis Asiae orientalis occurens, speciebus 5 adhuc cognitis.

Generis typus: **Dictyodroma heterophlebia** (Mett.) Ching.

本新属的分类位置近于 *Diplaziopsis* C. Chr., 但后者叶为奇数羽状, 顶生羽片与侧生的同形, 叶轴和主脉下面光滑无蠕形粗毛, 叶脉类型也不同, 孢子囊羣形如腊肠, 成熟时往往从背面破裂。本新属的形体颇似网脉双线蕨 (*Callipteris* Bory), 但遍体被蠕形有节的透明长毛, 羽轴和叶轴上面不具深纵沟, 两旁也无刀口形的隆起狭边, 叶脉类型也不尽相同。

The new fern genus *Dictyodroma*, based upon *Asplenium heterophlebium* Mett., is here proposed. *Asplenium heterophlebium* Mett., was first referred to *Diplazium* by Diels, this having been followed since by most botanists except Copeland, who lumped it with his comprehensive genus "*Athyrium*" in 1929. As a matter of fact, this peculiar fern differs, morphologically, from either one of the two genera in having a distinct frond-form, an unique type of venation and in the presence particularly on the stipite and rachis of a peculiar type of scalelike hairs, which all combined mark off the fern as very strange in the genus *Diplazium*, which it resembles only in the anterior basal sorus being often double, but it has been shown that soral characters as such is no longer considered by modern pteridologists as an important criterion in the classification of ferns in general.

It is clearly evident that, phylogenetically, the new genus, being a little offshoot evolved from the great stock of diplazioid ferns, is a close relative with the genus *Diplaziopsis* C. Chr., or perhaps rather more so with *Callipteris* Bory, from both of which it is distinguished chiefly by the peculiar scale-like hairs on the stipe and rachis and by the type of venation, besides a distinct frond-form.

As enumerated below, the genus *Dictyodroma* is now represented by five rather closely related species, namely, *D. basipinnatifida* (Ching) Ching, *D. heterophlebia* (Mett.) Ching, *D. yunnanensis* Ching, *D. formosana* (Rosenst.) Ching and *D. hainanensis* Ching, all being known from South China, with one species ranging over the Upper Burma, the eastern Himalayas and Cochin-China.

### 分 种 检 索 表

- 1(2) 叶片小, 长达 20 厘米, 下部羽状深裂, 或基部有时具 1 对分离羽片; 产两广…………… 1. 羽裂网蕨 **D. basipinnatifida** Ching
- 2(1) 叶片远较大, 长逾 30 厘米, 下部羽状, 有分离羽片多对。
- 3(6) 侧生羽片边缘多少为浅片裂或呈波状, 侧脉明显。
- 4(5) 叶轴被很多蠕形粗毛, 分离羽片 3—4(5) 对, 镰状披针形, 边缘多少呈波状, 根状茎的顶端被深棕色鳞片…………… 2. 网蕨 **D. heterophlebia** (Mett.) Ching

- 5(4) 叶轴近光滑, 分离羽片 7—8 对, 长圆披针形, 边缘呈浅片裂状, 根状茎的顶端被黑色鳞片…………… 3. 滇南网蕨 *D. yunnanensis* Ching
- 6(3) 侧生羽片为全缘, 侧脉不发达。
- 7(8) 侧生分离羽片向基部渐变狭, 圆形, 主脉两侧的网眼顶部为圆形, 发出 2—3(4) 条向外延伸的小脉…………… 4. 台湾网蕨 *D. formosana* (Rosenst.) Ching
- 8(7) 侧生分离羽片向基部渐变宽, 近心形, 主脉两侧的网眼顶部为尖三角形, 通常发出 1 条向外延伸的小脉…………… 5. 海南网蕨 *D. hainanensis* Ching

## 1. 羽裂网蕨

***Dictyodroma basipinnatifida*** (Ching) Ching, comb. nov.

*Diplazium basipinnatifidum* Ching, Sinensia I (1930) 49; C. Chr. Ind. Fil. Suppl. III (1934) 72.

本种是本属最小的 1 种, 叶片长达 20 厘米, 基部宽 8—10 厘米, 三角形披针状, 基部羽裂(有时基部 1 对羽片分离)向上浅片裂或波状, 易与本属其他各种区别。

仅产广东(罗浮山)、广西东北部(龙胜)、贵州南部(独山), 生山谷溪边阴湿密林中。

## 2. 网蕨 图版五, 图 9—14

***Dictyodroma heterophlebia*** (Mett.) Ching, comb. nov. Pl. V, figs. 9—14.

*Asplenium heterophlebium* Mett. in Hook. et Bak. Syn. Fil. (1867) 243.—*Diplazium heterophlebium* Diels in Engl. u. Prantl, Nat. Pflanzenfam. I, iv (1899) 228; C. Chr. Ind. Fil. (1905) 233; Tard.-Blot, Aspl. du Tonkin in Bull. Soc. Hist. Nat. Toulouse (1932) 76, t. 7, f. 4—5; Tard.-Blot et C. Chr. Fl. Indo-Chine VII, ii (1940) 268.—*Anisogonium heterophlebium* Bedd. Ferns Brit. Ind. (1869) t. 329; Handb. Ferns Brit. Ind. (1883) 192, f. 93.—*Athyrium heterophlebium* Cop. Philip. Journ. Sci. XXXVIII (1929) 142.—*Diplazium hemionitideum* Christ, Bull. Herb. Boiss. VII (1899) 12, non C. Chr. 1905.—*Diplazium rude* Christ in C. Chr. Ind. Fil. (1905) 238.

本种为本属的模式。叶片长 30—35 厘米, 宽 15—20 厘米, 长圆形, 羽状, 羽片 5—6 对, 下部 3—4 对分离, 镰状披针形, 长 9—11 厘米, 宽 2.3—2.7 厘米, 边缘波状或偶呈圆齿状, 长渐尖头。

产云南南部及西北部, 生密箐或密林中。少见。也分布于缅甸北部、喜马拉雅东南部、越南北部、泰国和马来亚北部山地。

## 3. 滇南网蕨 新种

***Dictyodroma yunnanensis*** Ching, sp. nov.

Species gregis *D. heterophlebiae* (Mett.) Ching, a qua specie paleis in apice rhizomatis nitide atratis, pinnis lateralibus liberis 7—8-jugis, latioribus, margine profunde crenato-lobulatis insigniter diversa.

Rhizomate crasso, erecto, radicibus crassis, subcarnosis dense praedito, apice paleis late lanceolatis, nitide atratis, imbricatim obtecto. Frondibus fasciculatis, stipite 20—30 cm longo, ca. 4 mm crasso, in sicco compresso, obscure stramineo, nudo, fere glabro;

lamina oblonga, usque ad 40 cm vel ultra longa, 14—18 cm medio lata, infra apicem acuminatum pinnatifidum pinnata; pinnis liberis 7—8-jugis, suboppositis, ca. 5 cm inter se remotis, patentibus, 8—10 cm longis, 2.5—3 cm latis, late lanceolatis vel potius oblongo-lanceolatis, acuminatis, versus basin non angustatis, sed latis truncatisque, breviter petiolatis, jugo basali paululum brevior, margine infra apicem acuminatum integrum crenatolobulatis; lobulis deltoideis, ca. 5 mm basi latis, obtusis, integris, obliquis; parte apicali frondis profunde pinnatifidis, segmentis infimis ad rhachidem plus minusve adnatis, sursum cum ceteris in alam ca. 2 cm latam confluentem, in apicem subintegrum cito transeunte; venis distinctis, reticulatim anastomosantibus, **primariis prominentibus, obliquis, areolis prope costam triangularibus et ex apice earum venulam solum unicam excurrentem emittentibus.** Pagina frondis textura herbacea, sicca obscure viridi, utrinque ut rachi fere glabra. Soris linearibus, 3—5 mm longis, utroque costulae latere uniseriatis, 2-jugis, obliquis uti videtur asplenioideis, indusio angusto, brunneo, persistente.

**Yunnan aust.-orient.:** Ping-pien Hsien, Tah-wei Shan, A-ta-Kow, Liu-chang, *Yunnan Complex Expedition 3541* (Typus), moist place in dense woods in ravine, alt. 1500 m, 16, VI, 1956.

本新种形体颇近前种,但根状茎的顶端被黑褐色鳞片,羽片7—8对,长8—10厘米,宽2.5—3厘米,渐尖头,边缘浅片裂,上下两面光滑,仅叶轴上面有少数深棕色粗毛,故易区别。

特产于云南东南部(屏边、大围山),生山沟密林中,海拔1500米。

#### 4. 台湾网蕨 图版五,图1—8

**Dictyodroma formosana** (Rosenst.) Ching, comb. nov. Pl. V, figs. 1—8.

*Diplazium formosanum* Rosenst. Hedwigia LVI (1915) 337; C. Chr. Ind. Fil. Suppl. II (1917) 12.—*Diplazium odoratissimum* Hay. Ic. Pl. Form. V (1915) 273, f. 103; C. Chr. Ind. Fil. Suppl. II (1917) 12; Ogata, Ic. Fil. Jap. IV (1931) pl. 161.—*Diplazium heterophlebium* Wu, Wong et Pong, Bull. Dept. Biol. Sun Yatsen Univ. No. 3 (1932) 168, pl. 75, non Diels, 1899.—*Anisogonium heterophlebium* H. Ito, Fil. Jap. Illustr. (1944) t. 170, non Bedd. 1869.

叶簇生,叶柄长20—30厘米,青灰色;叶片长30—45厘米,中部宽20—28厘米,长圆形,基部略变狭,羽状;分离羽片2—3对,近对生,开展,披针形,长8—12厘米,中部宽3—3.5厘米,有短柄,向基部略变狭,多少呈镰形,无明显侧脉,沿主脉两侧的1列网眼外缘为圆形,向外发出2—3(4)条小脉,上下两面光滑,仅叶轴及主脉基部下面有锈黄色短粗毛疏生。

产于我国台湾(台北、大桶山)及广西(大瑶山、容县),生山谷溪边林下,海拔800米。

本种过去误认为网蕨,其实有很大区别,叶几光滑,仅叶轴及主脉基部下面稍被短毛,羽片较宽,全缘,侧脉不明显,沿主脉两侧的网眼短而钝圆,向外发出2—3(—4)条小脉,故极易区别。

#### 5. 海南网蕨 新种

**Dictyodroma hainanensis** Ching, sp. nov.

Species ex affinitate *D. fomosanae* (Rosenst.) Ching, a qua differt praecipue dimensione minore, pinnis liberis basin versus haud anguste cuneatis sed latioribus truncatisque vel subcordatis, areolis secus costam triangularibus et plerumque ex apice earum venulam solum unam excurrentem emittentibus.

Rhizomate breve, parvo, erecto, radicibus crassis, subcarnosis, sat longis praedito, apice subnudo. Frondibus fasciculatis, erectis, stipitibus usque ad 24 cm vel ultra longis, 3 mm crassis, in sicco compressis, obscure stramineis, basin versus sparse paleaceis, sursum subglabris; lamina oblonga, ad 30 cm longa, 16 cm medio lata, breviter acuminata, infra pinnata, sursum profunde pinnatifida; pinnis inferioribus ca. 3-jugis liberis, ca. 4 cm inter se remotis, sessilibus, patentibus, ad 8 cm longis, 2—2.5 cm latis, lanceolatis, acuminatis, basin versus latioribus et truncatis vel plus minusve subcordatis, margine integris, jugo basali parum brevior, superioribus 2—3-jugis ad rachidem late adnatis ala 2 cm lata confluentibus, in apicem subintegrum cito transeuntibus; nervis distinctis omnibus reticulatim anastomosantibus, primariis parum distinctis, areolis secus costam utrinque triangularibus et ex apice earum plerumque venulam solum unam excurrentem emittentibus. Pagina frondis textura herbacea, in sicco laete viridi, rachi costisque paleis paucis ferrugineis ad insertionem pinnarum crebrioribus adpressis, alibi glaberrimis. Soris linearibus, longitudine variabilibus, 3—8 mm longis, utroque costae latere subbiserialis, sub angulo ca. 45° versus costam inclinatis sed illam non attingentibus, plerisque asplenioideis, raro diplazioideis, subpinnatim fasciculatis; indusio angusto, lineari, brunneo, firmiter membranaceo persistenteque.

Hainan: C. Wang (黄志) 35622 (typus), under dense forest, 18, XII, 1933.

本新种形体极似台湾网蕨,但较小,根状茎上几无鳞片复盖,侧生分离羽片较小,长 8 厘米,宽 2—2.5 厘米,向基部略变宽,截形或多少近心形,有明显的侧脉,主脉两侧的 1 列网眼为尖三角形,通常仅有 1 条小脉自其尖端外行,故易区别。

特产于海南岛,生山谷密林中,海拔 800 米。

### 毛子蕨属 *Monomelangium* Hayata

毛子蕨属 (*Monomelangium* Hayata) 是特产我国南方的一个突出的单种属,是 1928 年日本植物学家早田文藏根据我国台湾的 *Asplenium hancockii* Maxim. 创立的。由于原作者的记载过于简略,说理不精,未能获得植物学界应有的承认。根据作者的研究,认为有重新加以描述的必要。

陆生中等大的植物。根状茎短而粗,略斜升,光滑,仅幼时顶端疏被深棕色披针形的早落小鳞片。叶簇生,有柄,柄比叶片短,与叶轴密被污棕色透明的多少捲曲的有节的多细胞长软毛,上面有阔沟,下面圆;叶片狭长圆形,一回羽状,向顶端渐尖,并为羽裂;羽片无柄,平展,披针形,镰刀状,渐尖头,基部不等,下侧圆形,上侧耳状凸起,全缘或略呈波状;叶轴上面仅有浅纵沟,两边钝圆,与羽轴交接处不断裂,羽轴上面隆起,无边,与侧脉相交处不断裂;侧脉明显,基部不下延,二至三叉,上先出,在基部耳片上为羽状。叶革质,干

后淡褐綠色,两面光滑,惟羽軸下面与叶柄被同样的有节密毛。孢子囊羣为鉄角蕨型(仅有时向叶片頂部的羽片基部上側 1 枚偶为双盖蕨型),綫形,自主脉沿上側 1 小脉几达叶边;囊羣盖同形,狭长綫形,暗棕色,膜质,全緣,宿存;孢子近圓形,透明,表面有細长毛密生。

本属为单种的属,毛子蕨(*Monomelangium pullingeri* [Bak.] Tagawa)特产两广,台湾、海南島,云南东南部,向南达越南北部和橫榔岬。

本属在蹄盖蕨科为一突出的属,其形态特征介于鉄角蕨属(*Asplenium*)与双盖蕨属(*Diplazium* [sen. lat.])之間,可能是二者的合成型,在分类系統上仅略近于假蹄盖蕨属(*Athyriopsis*),但根状茎短而近直立,几不被鱗片,叶为簇生,叶柄、叶軸和主脉下面密被有节长毛,主脉上面隆起,不凹陷,孢子囊单生一脉,尤为突出的是孢子近圓形,其表面密被极长的細毛。

### **Monomelangium Hayata**

Hayata, Bot. Mag. Tokyo XLII (1928) 343.—*Asplenium* Bak. Gard. Chron. n. s. IV (1875) 484.—*Diplazium* J. Sm. Ferns Brit. & Fore. ed. 2 (1877) 315; C. Chr. Ind. Fil. (1905) 238 et Suppl. III (1934) 76.

As an unique monotypic genus, *Monomelangium* Hayata, based upon *Asplenium hancockii* Maxim. from Taiwan, has been not generally accepted by the fern students except M. Tagawa and H. Ito, who, however, soon withdrew their acceptance of the genus. In Genera Filicum (p. 150), E. B. Copeland seems to sneer at it, indicating his utter ignorance of the genus. In fact, this is an outstanding genus among all the athyrid ferns in that it shares a frond-form both of *Asplenium* and *Diplazium* (sen. lat.), from both of which the genus is, however, distinguished by the practically entire absence on rhizome and stipe of scales, but, instead, by the presence of abundantly long, soft, curled, brownish, transparent, multicellular, articulate and rather thick hairs, by the falcate entire pinnae with an auriculate base on the upper side and the costa being rounded, not grooved above, by the asplenoid sori and, above all, by the roundish spores provided with very long and densely hairy perispores, a character not known in any other species of the athyrid ferns. In view of all these above characters combined, the generic status of *Monomelangium* Hayata should be duly recognized, and its affinity with the next genus seems to be quite evident. The following is the sole species of the genus so far known:

***Monomelangium pullingeri*** (Bak.) Tagawa, Journ. Jap. Bot. XII (1936) 539; H. Ito, Fil. Jap. Illustr. (1944) pl. 171.

Basionym: *Asplenium pullingeri* Bak. Gard. Chron. n. s. IV (1875) 484.

Synonyms: See C. Chr. Fil. Ind. Suppl. III (1934) 76.

This peculiar plant has been named under nearly half a dozen of different names by various authors as already indicated in C. Chr. Ind. Fil. Suppl. III, p. 76. Additional synonyms to be mentioned here are *Athyrium pullingeri* Cop. Gen. Fil. (1947) 150 and

*Diplazium crenato-serratum* var. *hirta* Rosenst. Hedwigia LVI (1915) 336, based on a plant from Taiwan.

This is typically a southern Chinese plant, fairly common in Kwangtung, Kwangsi, the south-eastern part of Yunnan and the islands of Taiwan and Hainan, extending southwards to Vietnam (Tonkin) and Penang(?).

### 假蹄盖蕨属, 新属

**Athyriopsis** Ching, gen. nov.

*Asplenium* sect. *Athyrium* Hook. et Bak. Syn. Fil. (1874) 224, pro parte.—*Diplazium* C. Chr. Ind. Fil. (1905) et Suppl. I, II, III (1906—34), pro parte.—*Athyrium* Cop. Gen. Fil. (1947) 147, pro parte.—*Lunathyrium* Kurata in Namekata, Collection and Cultivation of Our Ferns and Fern Allies (1961) 170, non Koidz.

Genus novum inter *Lunathyrium* Koidz. et *Athyrium* Roth (sensu stricto) medium tenens, ab utroque recedit rhizomate late repente, frondibus distantibus, stipite basin versus nec incrassato, nec dorso-ventraliter concavo-convexo et marginibus lateralibus neurophoris nullis sed tereti, praeterea a primo differt indusio nunquam fornicato firmoque sed plano membranaceoque, margine saepe plus minusve fimbriato vel eroso, pinnis inferioribus non vel vix abbreviatis, a secundo costis pinnarum supra solum leviter sulcatis, sulco utroque latere nunquam alato-marginatis et ad insertionem costulae segmenti non incisis sed continuis, pagina frondis utrinque praecipue ad costas, costulas nervosque necnon ad rachin supra pilis brunneis articulatis multicellularibus sat longis, crassis, clavis, appressis plus minusve conspersa, soris more *Asplenii* linearibus, rectis aut basali acroscopico saepe diplazioideo, pinnis lateralibus basi utroque aequilatis, segmento basali antico haud producto praeditis.

Rhizomate late repente cum basi stipitum paleis brunneis submembranaceis, late lanceolatis aut subovatis basi affixis oblecto. Frondibus inter se remotis, distichis, stipitatis, stipite stramineo, rhizomati continuo, basin versus tereti vix incrassato; lamina oblonga, acuminata, basin versus haud attenuata, profunde bipinnatifida infra apicem frondis pinnatifidum; pinnis lateralibus lanceolatis, acuminatis, patentibus, basi aequalibus, subtruncatis, fere sessilibus, ad medium vel ultra in segmenta oblonga vel subquadrata margine subintegra vel leviter crenata pinnatifidis; nervis in segmentis paucijugis (4—7) simplicibus vel rarius furcatis; pagina frondis textura herbacea, utrinque praesertim ad rachin, costas costulasque pilis more *Lunathyrii* Koidz. brunneis articulatis, multicellularis, sat longis, crassis strigosa. Soris more *Asplenii* Linn. linearibus singulis vel raro in nervulo basali acroscopico binis; indusio pallide brunneo, membranaceo, soro conformi, unilaterali vel raro diplazioideo, plano, margine plus minusve fimbriato vel eroso, aetate corrugata, persistente. Sporibus bilateralibus, reniformibus, perisporis grosse verruculosus.

Genus ca. 15 speciebus in locis planis subtropicae Asiae orientalis occurens.

Generis typus: **Athyriopsis japonica** (Thunb.) Ching (*Diplazium japonicum* [Thunb.] Bedd.)

本属植物在分类学上的位置一直动荡不定,过去被一些学者有时归于双盖蕨属, (*Diplazium* Sw.) (sen. lat.), 有时归入蹄盖蕨属 (*Athyrium* Roth), 莫衷一是, 其实它与二者均有很大区别, 而与过去不被注意的蛾眉蕨属 (*Lunathyrium* Koidz.) 在许多形态特征上却相当接近, 但除了不同的地理分布区与垂直分布带外, 本属的根状茎长而横走, 叶为远生, 叶柄基部不加厚成腹背凹凸的纺锤形, 而为圆形, 两侧边也不具气囊体, 孢子囊羣盖膜质, 平坦 (不为厚质而膨胀的蚌壳形) 并且边缘常呈撕裂或啃蚀状, 老则皱折。

*Athyriopsis*, based upon the classical Sino-Japanese fern, *Asplenium japonicum* Thunb., is here proposed as a new genus of the athyrid ferns. *Asplenium japonicum* Thunb. has always been a tumbling stone in the classification of athyrid ferns and suffered from great vicissitudes in the past century. Beddome first placed it in *Diplazium*, this having been accepted by almost all fern students, and then came along Copeland, who kicked it into his comprehensive genus "*Athyrium*" as he did with other species of the group. Perhaps a more rational treatment is to be credited to Kurata, who about a year ago transferred the fern under *Lunathyrium* Koidz. In fact, *Athyriopsis* has nothing in common with *Athyrium* Roth, which is typified by *A. filix femina* and its allies. In *Diplazium* (sen. lat.) it is certainly better off for this fern, but with the segregation from *Diplazium* of Christensen's Index Filicum of *Allantodia* R. Br. as a distinct genus, this fern is again out of place there. Kurata's recent treatment of it by placing it in *Lunathyrium* Koidz. so far seems to be a better course to be taken for this fern, for, like *Lunathyrium pycnosorum* (Christ) Koidz., the type of the genus, *Asplenium japonicum* Thunb. also has a bipinnatifid frond-form, the presence on rachis and often both sides of the lamina of leaves of the characteristic thick articulate hairs and the slightly grooved costa of the pinnae above, which is not open to the rachis-groove at the point of insertion. Nevertheless, it differs from *Lunathyrium* in a number of important characters, among which are the long-creeping rhizome with distant leaves, the base of stipe is not tapering downward, nor dorso-ventrally concavo-convex upward, provided with a row of aerophores along the edge on lateral sides as in *Lunathyrium*, the veins are more or less forked and the indusia are thin membranaceous, broadly linear and flat generally with erose-dentate margin, while the nearly imbricating indusia of firm texture in *Lunathyrium* are lunate or oblong, vaulted over the sori when young and pushed back later by the expanding sori like an open shell. In spore morphology the two genera are also different. In *Athyriopsis* the perispores are coarsely verrucose, while in *Lunathyrium* are broadly winged. Apart from morphological differences, *Lunathyrium* is a genus of temperate regions or high mountains in West China and the Himalayas (also with one species in North America), while *Athyriopsis* inhabits the low-



lands or hills in tropical and subtropical Asia. For the above the reasons, the two genera can hardly be congenially united under one genus.

As a natural genus, *Athyriopsis* is now represented by about 15 closely related species most of which are from the warm parts of China and Japan, with a few extending to the other regions of South-East Asia.

***Athyriopsis conilii* (Franch. et Sav.) Ching, comb. nov. 钝羽假蹄盖蕨**

Basionym: *Asplenium conilii* Franch. et Sav. Enum. Pl. Jap. II (877) 227, (1879) 623.

Synonyms: *Diplazium conilii* Makino, Bot. Mag. Tokyo XXVII (1913) 253.

*Athyrium conilii* Tagawa, Journ. Jap. Bot. XIV (1938) 104 et Col. Illustr. Jap. Pterid. (1959) 130, pl. 52, f. 287.

*Lunathyrium conilii* Kurata in Namegata, Collection and Cultivation of Our Ferns and Fern Allies (1961) 306.

*Diplazium oldhami* (Hook. et Bak.) Christ Bull. Herb. Boiss. VII (1899) 819.

*Lunathyrium conilii* var. *oldhami* Kurata in Namegata, Collection and Cultivation of Our Ferns and Fern Allies (1961) 306.

产我国台湾、长江下游河谷丘陵地; 广布于日本全国及朝鲜南部的岛屿。

***Athyriopsis japonica* (Thunb.) Ching, comb. nov. 假蹄盖蕨**

Basionym: *Asplenium japonicum* Thunb. Fl. Jap. (1784).

Synonyms: *Diplazium japonicum* Bedd. Ferns Brit. Ind. Suppl. (1876) 12.

*Athyrium japonicum* Cop. Philip. Journ. Sci. III (1908) 290.

*Lunathyrium japonicum* Kurata, Journ. Geobot. IX (1961), 99 et in Namegata, Collection and Cultivation of Our Ferns and Fern Allies (1961) 307.

广布于我国东南各省, 经长江河谷向西达湖北西部及四川东部, 广西东部也产之。日本及其琉球诸岛屿和朝鲜南部也有广泛分布。

**var. *oshimensis* (Christ) Ching, comb. nov. 假蹄盖蕨斜羽变种**

Basionym: *Athyrium oshimense* Christ, Bull. Herb. Boiss. sér. 2, I (1901) 1017.

Synonyms: *Diplazium oshimense* H. Ito, Bot. Mag. Tokyo LII (1938) 648.

*Diplazium thunbergii* Nakai var. *angustatum* Nakai ex Momose, Journ. Jap. Bot. XIV (1938) 265; Bull. Nat. Sci. Mus. Tokyo No. 27 (1949) 13.

产浙江、安徽南部、江西(庐山)、湖北(宜昌)、湖南, 生湿润地; 日本也常见。

***Athyriopsis lasiopteris* (Kze.) Ching, comb. nov. 毛叶假蹄盖蕨**

Basionym: *Diplazium lasiopteris* Kze. Linnaea XVII (1843) 568.

Synonyms: *Asplenium lasiopteris* Mett. Fil. Lips. (1856) 78.

*Diplazium dimorphophyllum* Koidz. Acta Phytotax. et Geobot. I (1932) 27.

*Athyrium dimorphophyllum* Tagawa, Journ. Jap. Bot. XIV (1938) 104 et Col. Illustr. Jap. Pterid. (1959) 129, pl. 52, f. 286.

*Lunathyrium dimorphophyllum* Kurata in Namegata, Collection and Cultivation

of Our Ferns and Fern Allies (1961) 307.

产我国东南及长江流域,向西到四川东部及陕西南部(洛阳);也广布于日本、越南、印度、锡兰等地。过去常被误认为假蹄盖蕨。

**Athyriopsis peterseni** (Kze.) Ching, comb. nov. 毛轴假蹄盖蕨

Basionym: *Asplenium peterseni* Kze. Analecta Pteridogr. (1837) 24.

Synonym: *Diplazium peterseni* Christ, Bull. Acad. Géogr. Bot. Mans (1902) 245.

广布于我国东南各省,沿长江河谷向西达四川东部及华南各省;也产于日本,常见,生丘陵地的湿润林下。

**Athyriopsis grammitoides** (Presl) Ching, comb. nov. 吕宋假蹄盖蕨

Basionym: *Diplazium grammitoides* Presl, Epim. Bot. (1849) 84.

Synonyms: *Asplenium grammitoides* Hook. Ic. Pl. (1854) t. 913.

*Athyrium grammitoides* Milde, Bot. Zeit. (1870) 353.

产菲律宾及附近岛屿。

**Athyriopsis thwaitesii** (Kl.) Ching, comb. nov. 锡兰假蹄盖蕨

Basionym: *Diplazium thwaitesii* Kl. Cat. Hort. Augustin. (1865) 4.

Synonym: *Asplenium thwaitesii* A. Br. Ind. Sem. Hort. Ber. (1857); Mett. Farngatt.

Aspl. (1859) 183.

*Athyrium thwaitesii* Milde, Bot. Zeit. (1870) 354.

产锡兰、印度南部及南洋群岛。

**Athyriopsis kuisianum** (Koidz.) Ching, comb. nov.

Basionym: *Diplazium kuisianum* Koidz. Acta Phytotax. et Geobot. I (1932) 27.

Synonyms: *Athyrium kuisianum* Tagawa, Journ. Jap. Bot. XIV (1938) 105 et Col.

Illustr. Jap. Pterid. (1959) 129, pl. 52, f. 285.

*Athyrium japonicum* var. *kuisianum* Ohwi, Fl. Jap. Pterid. (1957) 117.

特产日本四国、九州温暖山地林下。

**Athyriopsis lobatocrenata** (Tagawa) Ching, comb. nov.

Basionym: *Diplazium lobatocrenatum* Tagawa, Acta Phytotax. et Geobot. III (1934) 36.

Synonym: *Athyrium lobatocrenatum* Tagawa, Col. Illustr. Jap. Pterid. (1959) 130, pl. 52, f. 288.

特产日本(四国、九州)温暖山地林下。

**阔羽假蹄盖蕨 新种**

**Athyriopsis pachyphylla** Ching, sp. nov.

Ex affinitate *A. japonicae* (Thunb.) Ching, a qua differt lamina frondis submembranacea, utrinque subglabra, pinnis lateralibus pauci-jugis (5—6), latioribus, apice obtusiusculis vel subacutis, basi subinaequalibus, segmentis pauci-jugis latioribusque.

Planta usque ad 40 cm alta. Rhizomate late repente, cum basi stipitis parce paleaceo. Frondibus distantibus, stipite 13—16 cm longo, 1.5 mm diametro, gracili, viridescente, supra basin glabro; lamina 17—25 cm longa, 8—12 cm lata, oblonga, apice breve acumi-

nata, basi non angustata, bipinnatifida; pinnis usque ad 6-jugis infra apicem frondis grosse pinnatifidum, alternis, sessilibus, patentissimis, inferioribus 2—3-jugis liberis, 4 cm et mediis adnatis 2 cm inter se remotis, 5—6 cm longis, 3—2 cm latis, oblongis, apice obtusiusculis vel subacutis, inferioribus basin versus angustioribus subaequalibusque, latere anteriore truncatis, posteriore cuneatis, ad  $\frac{1}{2}$  latitudinis lobato-incisis; lobis ca. 6-jugis infra apicem deltoideum serrulatum, subimbricatim confertis, oblongis, maximis ca. 10 mm longis, 8 mm latis, quadratis, apice rotundatis dentatisque vel subintegris; nervis in lobis 4—5-jugis, tenuibus, obliquis, simplicibus vel rarius furcatis, utrinque notatis. Pagina frondis textura submembranacea, utrinque fere glabra. Soris in segmentis 2—3-jugis, linearibus, inter costam marginemque oblique uniseriatim positus, 4 mm longis, asplenioideis sed in nervo basali anteriore saepe diplazioideo; indusiis membranaceis, griseis, oblongis, margine laceratis.

**Hupei bor-occid.:** on the border of Shensi, Wu-tan Shan, specimen no. 1488 ex Herb. Dept. Biol. North-western Univ. (Typus), 10, VIII, 1960.

本新种近于假蹄盖蕨 (*A. japonica* [Thunb.] Ching), 但叶近膜质, 两面近光滑, 侧生羽较少(5—6对)、较宽、先端近钝头, 仅下部2—3对分离, 向上的与叶轴合生并多少以狭翅下延, 裂片少数, 较宽, 钝头或近截头并略有钝齿牙, 两侧全缘, 极易区别。

**短果假蹄盖蕨 新种**

***Athyriopsis petiolata* Ching, sp. nov.**

Species e grege *A. japonicae* (Thunb.) Ching, a qua specie differt lamina frondis utrinque glabra, pinnis lateralibus distincte petiolatis, soris brevioribus, inter se magis remotis, inter costam et marginem positus.

Planta usque ad 30 cm alta. Stipite in specimine 11 cm longo, 1.4 mm diametro, obscure stramineo, parte inferiore sparse paleaceo, sursum ut rachi subglabro; lamina ambitu ovata, 20 cm longa ad 15 cm lata. acuminata, basi vix angustata, bipinnatifida; pinnis lateralibus 7-jugis infra apicem frondis deltoideum basi pinnatifidum sursum lobato-crenatum, alternis, patentissimis, 2 cm inter se remotis, breviter petiolatis, infimis paulo deflexis, quam medialibus latioribus (medio latissimo 2 cm lato), basin versus angustatis, ad 6 cm longis, pinnis medialibus 8 cm longis, 1.5 cm latis, e basi truncata lanceolatis, acuminatis, ad alam 4 mm latam pinnatifidis; segmentis 10—12-jugis infra apicem acuminatum serratum, contiguis, patentibus, maximis ad 8 mm longis, 6 mm latis, oblongis, apice obtusis vel subtruncatis, obscure dentatis, margine integris. Nervis in segmentis 4-jugis, obliquis, simplicibus, subtus perspicuis. Pagina frondis textura submembranacea, colore in sicco livido-viridi, utrinque glabra. Soris oblongis, 1—2 mm longis, inter se magis remotis, medialibus; indusiis conformibus, pallide brunneis, asplenioideis sed in nervo basali anteriore saepe diplazioideo.

**Kwangtung bor.:** Intak Hsien, Tsing-shui Shan, S. H. Hsu (徐祥浩) 403 (Typus), 1956.

本新种近于假蹄盖蕨 (*A. japonica* [Thunb.] Ching), 但叶片较短并为薄草质, 下部

羽片有明显的柄,孢子囊羣短,长圆形,远离主脉及叶边。

### 尾头假蹄盖蕨 新种

**Athyriopsis attenuata** Ching, sp. nov.

Species configuratione *A. japonicae* (Thunb.) Ching proxima, differt habitu magis anguste elongata, stipite sordide nigrescenti, pinnis caudato-acuminatis, segmentis acutis, integris, valde obliquis.

Rhizomate late repente, 4 mm crasso, dense radicoso. Frondibus remotis, stipite 32—37 cm longo, ca. 2.6 mm diametro, basin versus paleaceo, sursum subglabro, sordide nigrescenti suffultis; lamina stipiti aequali, medio 16 cm lata, elongato-oblonga, acuminata, basi paulo angustata, bipinnatifida; pinnis ca. 12-jugis infra apicem frondis pinnatifidum, alternis, obliquis, breve petiolatis, infimis medialibus aequilongis, sed adscendente obliquis, basin versus paulo angustatis, 10 cm longis, 1.5 cm medio latis, lanceolatis, apicem versus longe attenuatis (cauda 3 cm longa, 2—3 mm lata, serrulata), 6 cm a sequentibus remotis, pinnis mediis inferioribus conformibus sed oblique patentibus, basi non angustatis sed rotundato-truncatis ad alam 3.5 mm latam pinnatifidis; segmentis ca. 15-jugis obliquis, oblongis, ca. 3 mm inter se remotis, apice antrorsim acutis vel potius cuspidato-acutis, 5—6 mm longis, 4 mm latis, margine integris, apicem versus paulo repando-undulatis; nervis in segmentis 5-jugis, obliquis, simplicibus, utrinque notatis. Pagina frondis firmiter herbacea, in sicco obscurius viridi; rachi et costis subtus pilis pallide brunneis, sat longis sparsis, supra glabris. Soris plerumque 5-jugis pro segmento, 2—2.5 mm longis, oblongis, obliquis, contiguis, costae proximis, marginem non attingentibus, indusio conformi, brunneo, firmo, asplenioido vel rarius in nervo basali acroscopico diplazioideo, margine integro obtectis.

**Szechuan orient.**: Chungking, Pei-pai, Tsing-yin Shan, under bamboo grove in shaded moist forest, Liu Chen-tsu et al. (刘承泽等) 10034 (Typus), 10, IX, 1957.

本新种形体近于假蹄盖蕨 (*A. japonica* [Thunb.] Ching), 但叶柄为暗褐色,羽片斜向上,先端具线状长尾夹,裂片也斜向上,急尖头,孢子囊羣多而紧密排列,故易区别。

### 昆明假蹄盖蕨 新种

**Athyriopsis longipes** Ching, sp. nov.

Ex affinitate *A. japonicae* (Thunb.) Ching, a qua differt majore, rhizomate late repente, frondibus inter se magis remotis, lamina frondis textura tenuiter herbacea, segmentis margine grosse serratis, venis inferioribus saepe furcatis.

Tota planta 70—100 cm alta. Rhizomate longe repente, 4 mm crasso, dense radicoso, subnudo. Frondibus inter se valde remotis, stipite 40—65 cm longo, 2.5 mm diametro, basin versus fusco-brunneo, perparce paleaceo, sursum ut rachi pallide stramineo, subglabro; lamina 30—40 cm longa, 14—22 cm lata, oblonga, acuminata, basi non angustata, bipinnatifida; pinnis 10—12-jugis infra apicem frondis profunde pinnatifidum, alternis vel inferioribus suboppositis, sessilibus, recte patentibus, basalibus medialibus aequilongis sed latioribus (medio latissimo 3—3.5 cm lato), basin versus plus minusve angustatis, a sequentibus

5—6 cm remotis, pinnis mediis 7—12 cm longis, 1.8—2.2 cm latis, e basi truncata lanceolatis, acuminatis, ca. 3 cm inter se remotis, ad apicem 2 mm latam profunde pinnatifidis; segmentis 12—15-jugis infra apicem serratum dein fere integrum, patentibus, contiguis, oblongis, obtusis, 8—10 mm longis, 6 mm latis, margine regulariter crenato-serratis; nervis in segmentis 6—7-jugis, obliquis, plerisque furcatis, utrinque notatis. Pagina frondis herbacea, in sicco viridi, utrinque praesertim ad costam costulasque pilis brunneis, appressis, sat longis hirsuta, supra ad nervos iis pilis costularum similibus sed brevioribus, rufo-brunneis conspersa. Soris 5—6-jugis pro segmento, linearibus vel lineari-oblongis, omnino aspleioides, costae proximis, marginem segmenti non attingentibus, indusio conformi, brunneo, integro, firmulo obtectis.

**Yunnan:** Kunming, Sih-shan, Hua-ting-tze, in moist shaded ravine, alt. 2000 m, T. N. Liou (刘懋爵) 14278 (Typus), 6, XII, 1945; *ibid.*, Fr. Ducloux 497, Ping-chuan Hsien, Chi-tso Shun, speciemine no. 275 ex Herb. Dept. Biol. Yunnan University; Tali, Yang-pie Hsien, under forest, alt. 2300 m, R. C. Ching (秦仁昌) 25473, 4, XI, 1940.

本新种为本属的一个突出之种，形体略似假蹄盖蕨 (*A. japonica* [Thunb.] Ching)，但远较高大，叶极远生，薄革质，叶脉多数二叉，裂片边缘有粗锯齿，故易区别。

### 蛾眉蕨属 (*Lunathyrium* Koidz.)

蛾眉蕨属 (*Lunathyrium* Koidz.) 是日本植物学家小泉源一在 1932 年根据朝鲜及我国东北产的 *Athyrium pycnosorum* Christ 建立的。但以后并未获得植物学界的公认，一般仍作为蹄盖蕨属 (*Athyrium*) 看待。作者研究了 this 属，认为它同蹄盖蕨属大有区别，应作为一个单独的属，但过去大家对这个未被公认的属的了解不足，有必要重新叙述如下：

中等大的陆生高山林下植物。根状茎短粗，直立或斜升，被红棕色至黑褐色卵状披针形的膜质全缘大鳞片。叶簇生，有禾秆色（或罕为栗红色）的柄，叶柄比叶片短，向基部先端尖削，其上呈纺锤形的加厚，腹背呈凹凸面，沿两侧边缘有一列齿状凸起的小气囊体，并密被同样的鳞片和有节的卷曲而透明的粗软毛，干后易擦落；叶片长圆披针形或倒长圆形，渐尖头并为羽裂，向基部经常变狭，二回羽状深裂；羽片狭披针形，渐尖头，无柄，基部平截，两侧对称，近对生或互生，开展，向下数对照例缩短，有时基部的变为小耳片形，羽状深裂达羽轴两侧的闕翅；裂片多数，彼此接近，长圆形至长方形，先端圆，或罕为急尖或截形，全缘或多少有钝齿；叶轴及羽轴上面仅具有闕边的浅沟，在交接点彼此关闭，不能互通；主脉明显，隆起，无沟，两侧小脉 4—6(9) 对，不分叉，斜向上，基部一对达于缺刻上方的叶边，水囊为狭纺锤形。叶干后革质，绿色或褐绿色，叶轴和羽轴两面或一面经常或多或少地被有节透明的粗软毛，干后易擦落，叶片两面也往往有一些深棕色的节状短毛伏生。孢子囊群沿小脉上侧着生，线形至椭圆形，长 0.5—2 毫米，通直；囊群盖为狭新月形或椭圆形，纸质，坚实，宿存，黄棕色，全缘，彼此并行，单一，通直或稍弯弓，为铁角蕨型，或有时向羽片顶端环曲如马蹄形，或罕有在裂片基部上侧一脉上双生为双盖蕨型——此三种囊群盖有时并存于同一羽片上，成熟时膨胀如穹窿形，彼此接近如篦齿，被发育成熟的孢子囊群以远轴方向推开，宛如张开的蚌壳。孢子两面型，椭圆形，有闕翅状的周壁。

本属约有 30 余种，主产我国西部高山林下，向北经秦岭达东北、日本、朝鲜、苏联远东

区和北美洲东部,向西到喜马拉雅山西部,向东至华中、华东高山。

本属为一个很自然的、在形体上极为一致的蕨属,过去一直归属于蹄盖蕨属,但有很大的区别,其主要不同点除叶片常为二回深羽裂外,其羽片基部两侧对称,羽轴与叶轴上面仅有浅沟,两侧的边緣圓鈍,在相交点不能互通;叶轴(有时叶柄)、羽轴或叶脉常多少被有节透明的粗軟毛(干后易被擦落);裂片通常有小脉 5—7(—9) 对,单一;囊羣盖通常呈新月形,質地堅厚,背面为拱圓形,淡黃棕色,全緣,成熟时多少膨胀如蚌壳形。

### **Lunathyrium Koidz.**

Koidz. Acta Phytotax. et Geobot. I (1932) 31.

*Athyrium* C. Chr. Ind. Fil. (1905) 136 et Suppl. I, II, III (1906—34); Cop. Gen. Fil. (1947) 149, pro parte.

*Lunathyrium* is typified by *Athyrium pycnosorum* Christ from North-eastern Asia, a species closely related to *Athyrium acrostichoides* (Sw.) Diels of the eastern North America and the same region. It is a very natural genus of the athyrid ferns, differing from *Athyrium* Roth in an uniform frond-form, in the presence on leaves and particularly on rachis and costa of pinnae of the characteristically rufo-brown, multicellular, articulate, easily abraded and thick, curled hairs, in the costa of pinnae above being provided with only a shallow groove with rounded edges on each side, which is not open to the rachis-groove at the point of insertion and in the peculiarly lunate, fornicate and entire indusium of firm texture, which is vaulted over the sorus when young and pushed back by the expanding sporangia like an open shell. In fact, the genus has only one main external morphological character in common with *Athyrium* Roth, i. e., the stipe-base, which is tapering downward but strongly incrassated above and dorso-ventrally concavo-convex with small tooth-like neurophores along the edge on lateral sides.

*Lunathyrium* Koidz. has its geographic center of development in the mountains in West China and the eastern Himalayas where it is now represented by over 30 species, of which the previously described ones together with two new species from the Himalayas are enumerated below, while the other new species will be published in a separate paper.

Once again, reference may be made to Copeland's Genera Filicum where *Lunathyrium* Koidz. together with a number of other related genera including *Cornopteris* Nakai, *Monomelangium* Hayata of East Asia and *Homalosorus* Small of the Atlantic North America are all considered as being based upon "trivia" and having no faint claim to generic recognition. Such a view as held by Copeland in his later years of work does not mean anything but that he never attempted, as he did with *Hymenophyllaceae* and *Davalliaceae*, a serious enough study of all the species involved in these genera and particularly of their differences in leaf-architecture, dermal outgrowth, the nature of indusium and spores, all of which, as we see today, are characters of prime taxonomical

importance in a correct understanding of the genera of homoplastic nature, which are incidentally rich in the family *Athyriaceae*. It may perhaps be added that Copeland combined the family *Athyriaceae* with *Aspidiaceae* under his "*Aspidiaceae*" is one of the instances, where he, like Hooker and Baker a century ago, completely ignored the basic criteria of fern classification as importance factors in determining the phyletic relationships among the families of ferns, and, consequently, many of the genera construed by him are likewise of very heterogeneous nature, of which his genus "*Athyrium*" may serve as an extraordinarily glaring example, consisting over half dozen distinct genera in the light of modern fern taxonomy.

The distinctions of *Lunathyrium* Koidz. from *Athyriopsis* Ching were already mentioned thereunder.

***Lunathyrium vegetius* (Kitagawa) Ching, stat. et sp. nov. 河北蛾眉蕨**

Basionym: *Athyrium pycnosorum* var. *vegetius* Kitagawa, Rep. First Sci. Exped. Manch. IV, ii (1935) 28 et Lineam. Fl. Mansh. (1939) 28.

Synonyms: *Lunathyrium pycnosorum* var. *vegetius* Kurata in Namekata, Collection and Cultivation of Our Ferns and Fern Allies (1961) 308.

*Lunathyrium hopeiense* Ching in herb.

产河北西部及东北部山地、陕西秦岭、河南西北部,生山谷阴湿地,海拔 480—1200 米。

***Lunathyrium acrostichoides* (Sw.) Ching, comb. nov. 蛾眉蕨**

Basionym: *Asplenium acrostichoides* Sw. in Schrad. Journ. Bot. II (1800) 54.

Synonyms: *Athyrium acrostichoides* Diels in Engl. u. Prantl, Nat. Pflanzenfam. I, iv (1899) 223.

*Asplenium thelypteroides* Michx. Fl. Bor. Amer. II (1803) 265; Hook. et Ba. Syn. Fil. (1874) 226.

*Athyrium thelypteroides* Desv. Prodr. (1827) 266.

*Diplazium thelypteroides* Presl, Tent. Pterid. (1836) 114.

产东北各省、河北(南五台、内邱)、河南卢氏县、陕西(太白山)、四川西北部、云南西北部(德钦),生高山林下,海拔 1400—2500 米;也分布于苏联远东区、朝鲜、日本北部及北美洲。

***Lunathyrium wilsoni* (Christ) Ching, comb. nov. 峨山蛾眉蕨**

Basionym: *Athyrium wilsoni* Christ, Bull. Herb. Boiss. sér. 2, III (1903) 512; C. Chr. Ind. Fil. (1905) 147.

特产我国湖北西部(长阳)及四川峨眉山,生林下或灌丛中,海拔 2000—2500 米。

***Lunathyrium pycnosorum* (Christ) Koidz. Acta Phytotax. et Geobot. I (1932) 30. 东北蛾眉蕨**

Basionym: *Athyrium pycnosorum* Christ, Bull. Herb. Boiss. sér. 2, II (1902) 827.

产辽宁南部(千山)、吉林(长白山)及黑龙江(尚志、阿城、虎林),生混交林下,海拔 350—1000 米。朝鲜、日本北部及苏联远东区也有分布。

***Lunathyrium girdalii* (Christ) Ching, comb. nov. 陕西蛾眉蕨**

Basionym: *Athyrium giraldii* Christ, Nuov. Giorn. Bot. Ital. n. s. IV (1897) 91 et Bull. Soc. Bot. Ital. (1898) 29.

Synonyms: *Athyrium subsimile* Christ, Bull. Soc. Bot. Ital. (1898) 29; C. Chr. Ind. Fil. (1905) 143.

*Athyrium sargentii* C. Chr. Bot. Gaz. LVI (1913) 334.

产陕西秦岭(太白山、南五台山)、河南(伏牛山、老君山)、甘肃东南部(天水),生山谷林下,海拔1000—2700米。

**Lunathyrium dolosum** (Christ) Ching, comb. nov. 大理蛾眉蕨

Basionym: *Athyrium dolosum* Christ, Bull. Acad. Géogr. Bot. Mans (1907) 136.

特产云南西部(大理,苍山),生山沟杂木林下,海拔2500—3240米。

**Lunathyrium allantodioides** (Bedd.) Ching, comb. nov. 大吉岭蛾眉蕨

Basionym: *Athyrium allantodioides* Bedd. Ferns Brit. Ind. (1867) t. 221.

产喜马拉雅山区(锡金、不丹、印度北部),生林下,海拔2200—3800米。可能也产我国西藏南部。

**Lunathyrium christensenii** (Tard.-Blot) Ching, comb. nov. 大围山蛾眉蕨

Basionym: *Athyrium christensenii* Tard.-Blot, Aspl. du Tonkin (1932) 80, t. 12, f. 1, 2.

产云南东南部(屏边、大围山),生林石上,海拔1400米。也产于越南北部。

**喜马拉雅蛾眉蕨 新种**

**Lunathyrium sikkimense** Ching, sp. nov.

Stipite ca. 10 cm longo, 1.5 mm diametro, ad basin paleis atro-brunneis, lanceolatis, acuminatis, integris dense vestito; lamina ca. 25 cm longa, 7 cm medio lata, lanceolata, acuminata, deorsum gradatim angustata, bipinnatifida; pinnis ca. 16-jugis, approximatis, alternis, oblique patentibus, inferioribus 3—4-jugis abbreviatis, basalibus vix 1.4 cm et mediis 4 cm longis, basi ca. 8 mm latis, lanceolatis, acuminatis, ad alam 3 mm latam pinnatim incis; segmentis 12—14 utroque costae latere, pectinato-confertis, 3—4 mm longis, 2 mm latis, rectangularibus, apice obtusis vel subtruncatis, integris; nevis in segmentis 4—5 utroque costulae latere, obliquis, simplicibus, perspicuis. Pagina frondis textura firme chartacea, in sicco obscure brunnea, utrinque glabra, costis subtus pilis atro-brunneis brevibus sparsis exceptis. Soris parvis, 2—4-jugis pro segmento, oblongis, maturitate approximatis; indusiis conformibus, rubido-brunneis, turgidis, persistentibus.

**India:** Darjeeling, S. S. Bir 10 (Typus), alt. 3000—3800 m.

**China:** Tibet, Yatung, C. W. Chang 189.

A very interesting little fern of the genus, not comparable to any species so far known.

According to C. B. Clarke (Trans. Linn. Soc. ser. 2, Bot. I, 488, 1880), this is a common fern in the Himalayas and was called by him and other English botanists *Asplenium thelypteroides*, which is, however, unknown in the region.

本新种为本属最小的一种,极为特殊。我国西藏南部及东南部的喜马拉雅山区也有



分布。

### 尖片蛾眉蕨 新种

**Lunathyrium acutum** Ching, sp. nov.

Planta ca. 30 cm alta. Stipite ca. 10 cm longo, 2 mm diametro, supra basin stramineo, glabro nudoque; lamina ad 20 cm longa, ca. 10 cm lata, ovato-oblonga, acuminata, basi rotundo-cuneata, haud angustata, profunde bipinnatifida; pinnis ca. 10-jugis infra apicem frondis pinnatifidum, approximatis, obliquis, sessilibus, alternis, basalibus non abbreviatis, 6—7 cm longis, 1.3 cm latis (basi latiore), lanceolatis, acuminatis, fere ad costas pinnatifidis; segmentis ca. 14-jugis, patentibus, oppositis, ca. 6 mm longis (basalibus paulo longioribus), basi ca. 3 mm latis, deltoideo-lanceolatis, apice acutis, margine integris; venis 6-jugis pro segmento, obliquis, simplicibus, non visibilibus. Pagina frondis textura firme chartacea, colore in sicco brunnescente, supra praeter costas parce hirtas glabra, subtus subglabra, costis perparce hirsutis. Soris ca. 5-jugis pro segmento, oblongis, densis, indusiis oblongis, brunneis, firmis, persistentibus.

**Western Himalaya:** Gärhvál, Bádrinath, alt. 3000—3500 m, specimens from Herb. Schagintweit from India and High Asia, 1—31, VIII, 1855.

Species remote affinis *L. sikkimensi* Ching, a qua differt lamina ambitu ovato-oblonga, pulpo latiore, pinnis fere duplo longioribus, inferioribus non abbreviatis, segmentis e basi latissima deltoideo-lanceolatis, apice acutis.

本新种也为本属的一个突出之种,它和上一种的区別为叶片卵状长圆形,寬約超过二倍,羽片长也几超过二倍,下部几对不縮短,裂片基部最寬,三角状披針形,尖头。

### 軸果蕨属,新属

**Rhachidosorus** Ching, gen. nov.

*Asplenium* Makino, Bot. Mag. Tokyo XII (1898) 120.

*Athyrium* Makino, Bot. Mag. Tokyo XIII (1899) 12; C. Chr. Ind. Fil. (1905) 144;

Tagawa, Col. Illustr. Jap. Pterid. (1959) 128, pl. 51, f. 280.

*Diplazium* Koidz. Bot. Mag. Tokyo XXXVIII (1924) 112.

Genus novum inter *Athyrium* et *Diplazium* (sen. lat.) medium tenens, rhizomate crasso, late repente, apice cum basi stipitis paleis brunneis, lanceolatis, longissimis, tenuibus, subclathratis, integris, apice longe attenuatis fibriformibusque modice oblecto. Frondibus approximatis, stipite rhizomati continuo, ima basi tereti haud incrassato; lamina ampla, ambitu late deltoidea vel ovato-deltoidea, caudato-acuminata, herbacea, utrinque glabra nudaque, tripinnata vel quadripinnatifida; pinnis pinnulisque alternis, patentibus, petiolulatis, basi decurrentibus, subintegris vel crenato-dentatis; costis costulisque supra sulcatis, utroque latere alato-marginatis, inter se communicantibus; venis liberis, simplicibus aut paulo furcatis. Soris more *Asplenii* linearibus, costularibus, i. e. fere costae vel costulae parallelis; indusiis conformibus, sed saepe sublunatis, firmis, sat turgidis, integris,

juventute griseis, maturitate pallide brunneis, persistentibus, nec athyrioideis necque diplazioideis. Sporis monoletis, subreniformi-ellipsoideis, exosporis facie grosse tuberculatis.

8 species in Asia subtropica adhuc cognitis.

Generis typus: **Athyrium mesosorum** Makino.

本属组成种类的分类学位置过去一直动荡不定, 有时归于双盖蕨属 (*Diplazium* Sw. [sens. lat.]), 有时归于蹄盖蕨属 (*Athyrium* Roth), 但它们的孢子囊羣和盖既不象蹄盖蕨型, 也不象双盖蕨型, 而却为铁角蕨型, 囊羣盖厚膜质, 多少膨胀, 略呈新月形, 全缘, 宿存, 并紧靠小羽轴(或主脉), 彼此几平行, 显然不同, 应成立一个新属较为恰当。

The present new genus, based upon *Athyrium mesosorum* Makino, represents a group of 8 species from South-east Asia, some of which were classified as *Diplazium* and others as *Athyrium* in the past. Tagawa probably the first, who while naming a plant from Taiwan as *Diplazium pulchrum*, emphatically questioned the systematic position of his species. From both *Athyrium* and *Diplazium* (or rather *Allantodia* R. Br.), the genus differs in thick creeping rhizome with distant or approximate leaves, in the scales near the base of stipe being thin, entire, subclathrate with large clear subhexagonal luminae and, above all, in the narrow semilunate sori and indusia of the asplenioid type closely subparallel to the costa of pinnule or to the costules of ultimate segments, which are never diplazioid nor athyrioid. In spore morphology, the genus shows differences too, the exospores being provided with coarse crests. Seeing that no known genus will be properly fit for this group of ferns, hence a new taxon is here proposed.

**Rhachidosorus mesosorus** (Makino) Ching, comb. nov. 軸果蕨

Basionym: *Asplenium mesosorum* Makino, Bot. Mag. Tokyo XII (1898) 120.

Synonyms: *Athyrium mesosorum* Makino, Bot. Mag. Tokyo XIII (1899) 82.

*Diplazium mesosorum* Koidz. Bot. Mag. Tokyo XXXVIII (1924) 112.

产江苏南部(宜兴)、湖北西部(巴东), 生林下沟中, 海拔约 100 米。也产于日本(四国, 九州, 本州)。

**Rhachidosorus stramineus** (Cop.) Ching, comb. nov.

Basionym: *Athyrium stramineum* Cop. Philip. Journ. Sci. III (1908) 292.

特产菲律宾。

**Rhachidosorus chrysocarpus** (v.A.v.R.) Ching, comb. nov.

Basionym: *Diplazium chrysocarpum* v. A. v. R. Bull. Jard. Bot. Buit. sér. 2, XVI (1914) 8.

特产苏门答腊。

**Rhachidosorus blotianus** Ching, nom. nov. 脆叶軸果蕨

Basionym: *Athyrium fragile* Tard.-Blot, Aspl. du Tonkin (1932) 84, pl. 13, f. 5, non Spreng. 1804.

产云南南部(西双版纳)及东南部(蒙自、西畴)、广西西南部(百色)、贵州中部(惠水), 生灌木林中, 海拔 850 米。也产越南北部。

**Rhachidosorus pulcher** (Tagawa) Ching, comb. nov. 台湾軸果蕨

Basionym: *Diplazium pulchrum* Tagawa, Acta Phytotax. et Geobot. IV (1935) 144.

特产我国台湾。

### 峨眉轴果蕨 新种

**Rhachidosorus consimilis** Ching, sp. nov.

Planta usque ad 1 m alta. Rhizomate repente; frondibus approximatis, stipite ca. 50 cm longo, basi 3 mm diametro, fusco, sursum ut rachi pallide stramineo, glabro, vix lucido, supra sulcato; lamina deltoidea vel oblongo-deltoidea, stipitem aequante, basi 25—30 cm lata, infra apicem acuminatum pinnatifidum tripinnatifida; pinnis ca. 10-jugis, alternis (vel inferioribus suboppositis), obliquis, omnino petiolatis, inferioribus 7—9 cm inter se remotis, basalibus ambitu sequentibus perconformibus, petiolo 1.5—2 cm longo stipitatis, 16—18 cm longis, 5—6 cm latis, lanceolatis, longe acuminatis, basi subrotundatis, profunde bipinnatifidis; pinnulis ca. 10-jugis, alternis, patentibus, sessilibus, liberis, 3—4 cm longis, 1—1.5 cm latis, deltoideo-lanceolatis, apice acutis vel breve acuminatis, basi valde inaequilateralibus, antice truncatis auctisque, postice abrupte obliquis, ad alam latam pinnatifidis; segmentis 5—6-jugis, contiguis, obliquis, oblongis, basali anteriore majore, ceteris 5 mm longis, 3 mm latis, apice subtruncatis, dentato-crenatis. Venis in segmentis 3—4-jugis, obliquis, simplicibus vel inferioribus furcatis, subtus perspicuis. Pagina frondis textura herbacea, sicca laete viridi, utrinque glaberrima. Soris 4—5-jugis pro segmento, linearibus, in vena antica basali sitis, costulae valde proximatis; indusiis semi-lunatis, brunneis, margine integris.

**Szechuan:** Omei Shan, below Hung Chin Ping in the valley of Hai Lung Kiang, R. C. Ching (秦仁昌) 185 (Typus), in thickets, alt. 700 m, III, 1956.

Species habitu generali arcte affinis *R. mesosoro* (Makino) Ching, sed stipite ut rachi pallide stramineo, non lucido, pinnulis I. Ord. minoribus, apice acutis, basi valde inaequalibus sessilibusque facile distinguitur.

本种形体极似轴果蕨 (*Rhachidosorus mesosorus* [Makino] Ching), 但叶柄为禾稈色, 无光泽; 小羽片近急尖头, 无柄, 裂片为截头, 故易区别。

### 贵州轴果蕨 新种

**Rhachidosorus truncatus** Ching, sp. nov.

Planta verisimiliter ultra 1 m alta. Stipite non viso; lamina ampla, ca. 60 cm longa vel longiore, 40 cm medio lata, deltoidea, acuminata, tripinnata; pinnis ca. 12-jugis, alternis, obliquis, omnino petiolatis, inferioribus ca. 10 cm inter se remotis, suboppositis, petiolo 1.5 cm longo stipitatis, 25 cm longis, 8 cm latis, oblongo-lanceolatis, acuminatis, basi truncatis aequilateralibusque, bipinnatis; pinnulis ca. 15-jugis, alternis, divaricatis, approximatis, e basi latiore aequaliterque truncatis late lanceolatis, acuminatis, subfalcatatis, breviter petiolulatis (petiolulo ca. 2 mm longo, alato), ad alam angustam pinnatifidis; segmentis 5—6-jugis, rectangularibus, 5—6-mm longis, 4 mm latis, apice truncatis, marginibus lateralibus paulo crenatis. Venis in segmentis 3—4-jugis, plerumque furcatis, obliquis, vix perspicuis. Pagina frondis textura herbacea, sicca obscurius viridi, utrinque

glaberrima. Soris 1—4 pro segmento, linearibus, 3 mm longis, costulae proximatis; indusiis pallide brunneis, semilunatis, integris.

**Kweichow austr.:** Chea-han Hsien, T. Y. Cheo (曹子余) 493 (Typus), under forest, alt. 1500 m, 3, IX, 1958.

Species habitu general affinis *R. pulchro* (Tagawa) Ching, a quo differt statu minore, lamina frondis ca. 60 cm longa, pinnulis I. Ord. pinnarum inferiorum ca. 5 cm longis, 2 cm latis, segmentis ultimis apice truncatis integrisque.

本种形体甚为美观, 近于轴果蕨 (*Rhachidosorus mesosorus* [Makino] Ching), 但远较高大, 叶柄淡禾秆色, 小羽片基部对称, 并为截形, 故易区别。

**云南轴果蕨 新种**

***Rhachidosorus subfragilis* Ching, sp. nov.**

Planta usque ad 1 m alta. Rhizomate repente, crasso, apice cum basi stipitis paleis atro-brunneis, lanceolatis sparse vestito. Frondibus distantibus, stipite ca. 48 cm longo, 5 mm diametro, ut rachi pallide stramineo, glabro, ad basin fusco-brunneo, paleaceo; lamina deltoideo-ovata, ca. 60 cm longa, 30 cm basi lata, apice acuminata, basi truncata, lata, tripinnata vel quadripinnatifida; pinnis ca. 10-jugis, alternis, patentibus, omnino petiolatis, inferioribus 7—8 cm inter se remotis, basalibus maximis, oblongo-lanceolatis, ca. 25 cm longis, 7 cm basi latis, subhorizontaliter patentibus, petiolo ca. 1 cm longo stipitatis, apice acuminatis, basi subtruncatis, tripinnatifidis; pinnulis I. Ord. ca. 10-jugis, alternis, obliquis, inferioribus 2—2.5 cm distantibus, petiolulatis, superioribus sessilibus, basalibus majoribus, ca. 5 cm longis, 1.5—2 cm latis, oblongis, obtusis, basi subtruncatis, aequililateralibus, petiolulo ca. 5 mm longo stipitatis, bipinnatifidis; pinnulis II. Ord. 5—6-jugis, sessilibus, in alam angustam decurrentibus, ca. 1 cm longis, 5—7 mm latis, ovatis vel oblongis, obtusis, basi postice rotundatis, antice truncatis et paulo auriculatis, ad 1/2 pinnatifidis; segmentis 3-jugis, obliquis, margine integris. Venis in segmentis ultimis pinnatis, simplicibus vel furcatis, subtus prominulis. Pagina frondis textura herbacea, sicca obscure viridi, utrinque glabra. Soris linearibus (maturis oblongis), 3—5-jugis, pro pin-nula ultima, in vena basali antica segmenti sitis, costulae valde proximis; indusiis brunneis, linearibus, rectis, margine integris.

**Yunnan austr.-orient.:** Mar-li-po, Hwang-jin-in, K. M. Feng (馮國楨) 1315 (Typus), in mixed forest, alt. 1400—1600 m, 10, XI, 1947.

Species arcte affinis *R. blotiano* Ching, a quo differt statu minore, pinnulis apice obtusis, crenulatis, segmentis ultimis margine integris.

本种形体酷似脆叶轴果蕨 (*Rhachidosorus blotianus* Ching), 但叶较小, 小羽片钝头, 裂片为全缘, 可以区别。

**假冷蕨属, 新属**

***Pseudocystopteris* Ching, gen. nov.**

*Cystopteris* Maxim. Mém. Acad. St. Petersb. IX (1858) 340, non Bernh. 1806.

*Athyrium* Milde, Bot. Zeit. (1866) 376 et Fil. Europ. et Atlant. (1867) 57; C. Chr. Ind. Fil. (1905) 146, pro parte.

Genus novum inter *Cystopteridem* Bernh. et *Athyrium* Roth medium tenens, a primo differt praesertim indusiis superis, nephrodioideis, sinu ad receptaculum punctiformem affixis, a secundo rhizomate late repente, frondibus inter se magis distantibus, stipite basin versus non incrassatis, soris parvis, rotundatis, in venulis dorsaliter sitis, indusiis nephrodioideis, sinu ad receptaculum punctiformem affixis, toto margine liberis.

Rhizomate late repente, nigrescenti, laxo dichotomo-ramoso, subnudo, ad apicem paleis brunneis, magnis, diaphanis, ovatis vel ovato-lanceolatis, acuminatis, integris appresse vestito; frondibus inter se magis distantibus, stipite basi non incrassato et deorsum nec attenuato, vulgo sparse paleaceo, sursum glabro; lamina late deltoidea vel deltoideo-ovata, acuminata, 3—4-pinnatifida vel rarissime bipinnata; pinnis petiolatis, obliquis vel patentibus, ambitu late lanceolatis, basin versus saepe sensim angustatis; segmentis ultimis parvis, margine inciso-serratis, serraturis saepe spinulosis. Venis liberis, tenuibus, in dentes intransibilibus. Pagina frondis textura herbacea, utrinque glabra vel interdum costis subtus plus minusve glanduloso-puberula. Soris globosis, parvis, dorso ramorum anticorum furcae nervi positae; indusiis parvis, nephrodioideis, membranaceis, sinu ad receptaculum punctiformem affixis, margine liberis et dentatis vel laciniato-ciliatis. Sporae bilateralibus, reniformibus, vel ovato-oblongis, exosporis anguste alatis.

Genus 13 speciebus in regionibus temperatis et montibus Chinae occidentalis Himalayaeque occurrens.

Generis typus: ***Cystopteris spinulosa* Maxim.**

As a natural genus, *Pseudocystopteris* is confined in distribution to West China and the Himalayas with one out-lying species in North-eastern Asia. Systematically, the genus occupies an intermediate position between *Cystopteris* and *Athyrium* with a greater affinity with the former, to which some species were previously referred by authors and from which it is distinguished by generally much taller and ampler leaves of deltoid-ovate outline with the basal pinnae usually narrowed towards base, by sharply serrated leaf-margin, by the reniform indusium with fimbriate margin and broad usually subcordate base not inserted under the sorus and by the spores not echinate but winged on the surface. The genus has a more southerly geographic center of development than *Cystopteris*.

本属在分类位置上介于冷蕨属(*Cystopteris* Bernh.)与蹄盖蕨属(*Athyrium* Roth)之间,不同于前者在于叶体较大,叶边有发达的尖锯齿密生,孢子囊盖虽为圆形,但囊盖基部不为下位的鳞片状,而为圆肾形或肾形,边缘有睫毛,孢子表面有翅,叶质也较坚厚;不同于后者在于有细长横走而几无鳞片的根状茎,叶柄基部不为膨大的纺锤形,向下不变尖削,孢子囊盖圆形,生于小脉背上,罕有半侧生于侧脉,囊盖为肾圆形或肾形,基部羽片从不缩短,而且往往最长。

本属是根据原产我国东北的 *Cystopteris spinulosa* Maxim. 建立的。此种植物在近代植物学文献中一直归属于蹄盖蕨属 (*Athyrium* Roth)。在喜马拉雅山区也有 1 个相近的种, 原名为 *Asplenium subtriangulare* Hook.; 以后学者一直认为与我国东北的种相同, 或把它作为一个变种看待。在研究了近年来在中国各地所采集的丰富材料以后, 不仅证明了以上两种在地理分布上是以秦岭为分界线的不同种, 同时还发现了 8 个新种, 现共有 13 种, 组成一个很自然的群。这群植物在形态特征上恰恰介于冷蕨属和蹄盖蕨属之间, 但不能很恰当地归并于两属中的任何一属, 因此把它作为一个独立的属分立出来。如同蹄盖蕨属一样, 青藏高原和云南西北部横断山脉地区为本属的分布中心, 这更证明了本属在地理分布上, 同蹄盖蕨属也有着密切的亲缘关系。

***Pseudocystopteris spinulosa* (Maxim.) Ching, comb. nov. 假冷蕨**

Basionym: *Cystopteris spinulosa* Maxim. Mém. Acad. St. Petersb. IX (1858) 340.

Synonyms: *Athyrium spinulosum* Milde, Bot. Zeit. (1866) 376; C. Chr. Ind. Fil. (1905) 146.

*Asplenium spinulosum* Bak. in Hook. et Bak. Syn. Fil. (1867) 225.

广布于我国东北各省、内蒙古(大兴安岭), 向南达陕西太白山, 海拔 1100 米到 3000 米; 苏联远东地区、朝鲜及日本也产之。

***Pseudocystopteris longipes* (Christ) Ching, comb. nov. 长柄假冷蕨**

Basionym: *Athyrium longipes* Christ, Bull. Soc. Bot. France LII, Mém. 1 (1905) 48; C. Chr. Ind. Fil. (1905) 143.

特产于四川(峨眉山, 康定, 理县), 生冷杉林下, 海拔 2500—3600 米。

***Pseudocystopteris subtriangularis* (Hook.) Ching, comb. nov. 三角叶假冷蕨**

Basionym: *Asplenium subtriangulare* Hook. in Hook. et Bak. Syn. Fil. (1867) 225.

Synonyms: *Athyrium subtriangulare* Bedd. Ferns Brit. Ind. (1868) t. 242.

*Asplenium spinulosum* var. *subtriangulare* Clarke, Trans. Linn. Soc. ser. 2, Bot. I (1880) 487.

*Athyrium spinulosum* var. *subtriangulare* C. Chr. Ind. Fil. (1905) 146.

*Athyrium hookerianum* Moore, Ind. Fil. (1860) 185, nom. nud. Milde, Fil. Europ. et Atlant. (1867) 57.

产云南西北部、四川西部、西藏南部(亚东); 也广布于锡金、不丹、尼泊尔, 海拔 2600—3700 米。

***Pseudocystopteris atkinsoni* (Bedd.) Ching, comb. nov. 大叶假冷蕨**

Basionym: *Athyrium atkinsoni* Bedd. Ferns Brit. Ind. Suppl. (1876) 11, t. 359 et Handb. Ferns Brit. Ind. (1883) 163.

Synonyms: *Asplenium atkinsoni* Clarke, Trans. Linn. Soc. ser. 2, Bot. I (1880) 487.

*Aspidium senanense* Franch. et Sav. Enum. Pl. Jap. II (1877) 241 et (1879) 636.

*Dryopteris senanensis* C. Chr. Ind. Fil. (1905) 291.

*Athyrium senanense* Koidz. et Tagawa, Acta Phytotax. et Geobot. III (1934)

34.

*Asplenium lastreoides* Bak. Journ. Bot. (1888) 227.

*Athyrium lastreoides* Diels in Engl. u. Prantl, Nat. Pflanzenfam. I, iv (1899) 224; C. Chr. Ind. Fil. (1905) 143.

*Davallia athyriifolia* Bak. Ann. Bot. (1891) 200.

*Athyrium microsorum* Makino Bot. Mag. Tokyo XIII (1899) 25.

*Aspidium fargesii* Christ, Bull. Soc. Bot. France LII, Mém. 1 (1905) 46.

*Dryopteris fargesii* C. Chr. Ind. Fil. (1905) 264.

*Athyrium monticola* Rosenst. Hedwigia XIII (1913) 113.

*Cystopteris grandis* C. Chr. in Lév. Cat. Pl. Yunnan (1916) 100.

广布我国云南、四川、贵州，向北达陕西秦岭、河南老君山及山西南部，生林下或高山草原，海拔 1210—4000 米。也产于日本、朝鲜南部、缅甸、不丹、锡金、尼泊尔。

***Pseudocystopteris andersoni* (Clarke) Ching, comb. nov. 喜马拉雅假冷蕨**

Basionym: *Asplenium andersoni* Clarke, Journ. Linn. Soc. IV (1876) 154.

Synonyms: *Asplenium atkinsoni* var. *andersoni* Clarke, Trans. Linn. Soc. ser. 2, Bot. I (1880) 487, t. 52.

*Athyrium andersoni* Ching, in herb.

*Asplenium fimbriatum* var. *sphaeropteroides* Clarke, l.c. 495, t. 62, f. 1.

产锡金；可能也产我国西藏南部亚东地区。

***Pseudocystopteris sikkimensis* (Bir) Ching, stat. et sp. nov. 锡金假冷蕨**

Basionym: *Athyrium subtriangulare* (Hook.) Bedd. var. *sikkimense* Bir, Nova Hedwigia IV (1962) 168, t. 53, ff. 9—10.

本新种产于锡金北部，生林下或空曠地，海拔约 4000 米上下，习见。

**Northern Sikkim:** S. S. Bir 1057 (typus), 27, VII, 1958.

A very distinct species, not at all related to *Pseudocystopteris subtriangularis* (Hook.) Ching, as has been pointed out by Bir.

**睫毛盖假冷蕨 新种**

***Pseudocystopteris schizochlamys* Ching, sp. nov.**

*Cystopteris schizochlamys* Ching, in herb.

Planta 20—25 cm alta. Rhizomate late repente, 2—3 mm diametro, radicoso, apice paleis brunneis, magnis, late ovatis, diaphanis integris appresse obtecto. Frondibus remotis, stipite 6—10 cm longo, ca. 1 mm crasso, gracili, ut rachi purpurecente stramineo, sparse paleaceo; lamina 11—17 cm longa, 5—9 cm lata, oblonga, acuminata, basi non angustata, tripinnata; pinnis infra apicem frondis acuminatum pinnatifidum 13-jugis, patentibus, breve petiolatis, suboppositis, inferioribus 1.5—2 cm inter se remotis, superioribus approximatis, oblongo-lanceolatis, apice obtusis, basi rotundo-truncatis, subaequalateralibus, antice rectis, postice cuneatis, ad costam anguste alatum pinnatifidis; segmentis 2—3-jugis, ca. 3 mm longis, 2 mm latis, oblongis, basali anteriore recte patenti, ceteris obliquis, apice acutis dentatisque. Nervis supra non visis, infra perspicuis, in segmentis ultimis 2—3-furcatis, nervulis in dentes intransibilibus. Pagina frondis textura tenuiter her-



1-8. 台湾網蕨 *Dictyodroma formosana* (Rosenst.) Ching, 1. 全叶,  $\times 1$ ; 2. 羽片的一部分, 表示叶脉和孢子囊羣,  $\times 100$ ; 3. 叶柄基部的鳞片,  $\times 10$ ; 4. 叶柄上的鳞片,  $\times 10$ ; 5. 叶轴上的鳞片,  $\times 10$ ; 6. 叶柄下部断面,  $\times 10$ ; 7. 叶轴断面,  $\times 10$ ; 8. 孢子,  $\times 100$ 。9-14. 網蕨 *Dictyodroma heterophlebia* (Mett.) Ching, 9. 全叶,  $\times 1$ ; 10. 羽片的一部分, 表示叶脉和孢子囊羣,  $\times 5$ ; 11. 叶柄下部的鳞片,  $\times 10$ ; 12. 孢子,  $\times 100$ ; 13. 叶轴上部的鳞片,  $\times 10$ ; 14. 叶轴上的鳞片,  $\times 10$ 。



bacea, in sicco flavo-virescenti, utrinque glaberrima. Soris parvis, globosis, uno pro segmento vel saepe 2—3 in segmento basali anteriore; indusiis minutis, brunneis, subnephrodioideis, margine plus minusve laceratis, demum evanidis.

**Szechuan occid.:** Lu-shan Hsien, Shio-sho, Bei-mo Shan, *H. S. Kung* (孔宪需) 47, in alpine meadows, 7, V, 1958, common; Kangting Hsien, Cheto La, *Harry Smith* 10955, in silva subalpina, alt. ca. 3500 m, 4, VIII, 1934. Tibet: *K. Ward* 727 (Typus), in Herb. Edinb. Bot. Gard.

A speciebus ceteris sinensibus adhuc cognitis primo aspectu diversa stipite rachique purpureiscentibus, pinnis inferioribus basin versus haud angustatis, indusiis marginibus laceratis.

### 长根假冷蕨 新种

***Pseudocystopteris repens*** Ching, sp. nov.

Planta 20—30 cm alta. Rhizomate late repente, 2.5—3 mm diametro, subnigrescenti, ad apicem paleis brunneis, ovatis vel late lanceolatis diaphanis oblecto. Frondibus inter se magis distantibus, stipite 7—10 cm longo, basi 1.5 mm crasso, nigrescenti, sursum ut rachi purpurello-stramineo et per totam longitudinem paleis iis rhizomatis similibus modice vestito; lamina oblonga, 14—17 cm longa, 7—10 cm medio lata, acuminata, basi paulo angustata truncataque, bipinnata; pinnis 13—15-jugis, confertis, fere recte patentibus, alternis, sessilibus, basalibus 2-jugis paulo abbreviatis, 2.3—1.5 cm inter se remotis, aliquantum deflexis, mediis 4—5 cm longis, 1.5 cm basi latis, late lanceolatis, breve acuminatis, basi truncatis, sessilibus, pinnata; pinnulis 10—12-jugis, contiguis, recte patentibus, oblongis, ca. 7 mm longis, 4 mm latis, apice obtusis et prominente dentatis, basi rotundocuneatis, subaequalibus, liberis vel basi postice secus costam in alam angustissimam decurrentibus, marginibus lateralibus duplicato-dentato-serratis vel incisis (et segmentis iterum dentatis). Venis in pinnulis pinnatis, furcatis, venulis in dentes intransibis, subtus distinctis. Pagina frondis textura herbacea, in sicco laete viridi, utrinque rachi costisque perparce glandulosis exceptis glabra nudaque. Soris medialibus, parvis, globosis, dorsalibus, in pinnulis 2—3-jugis vel uno pro segmento; indusiis subovatis vel nephrodioideis, pallide brunneis, margine fimbriatis.

**Szechuan occid.:** Lu-shan Hsien, Ta-chuan, *H. S. Kung* (孔宪需) 222 (Typus), in *Rhododendron* thickets, alt. 3500 m, 5, VII, 1958.

Ex affinitate *P. schizochlamydis* Ching, a qua differt stipite fere stramineo, pinnis basi truncatis et rachin appressis, pinnulis ovato-oblongis, usque ad  $\frac{1}{2}$  pinnatifidis.

本种形体颇似蹄盖蕨(*Athyrium filix-femina* [Linn.] Roth),但根状茎长而横走,具远生的叶和冷蕨型的孢子囊羣。

### 西藏假冷蕨 新种

***Pseudocystopteris tibetica*** Ching, sp. nov.

Planta 30—34 cm alta. Rhizomate late repente, tenui, subnudo, apice paleis magnis, pallide brunneis, ovato-lanceolatis, pellucidis parce oblecto. Frondibus distantibus, stipite 15—22 cm longo, 1.5 mm diametro, gracili, ad basin fusco-brunneo, paleis iis rhizomatis

similibus sparso, sursum subglabro et stramineo; lamina ovata, 12—15 cm longa, apice acuminata, basi rotundo-cuneata, tripinnatifida; pinnis ca. 12—15-jugis, alternis, obliquis, approximatis, subsessilibus (basalibus interdum breviter petiolatis exceptis), inferioribus 1.5—1.7 cm inter se remotis, basalibus ambitu sequentibus similibus, oblanceolatis, 6—8 cm longis, ad medium latissimum 2 cm latis, apice breviter acuminatis, basin versus gradatim angustatis (ima basi ca. 1 cm latis), truncatis aequalibusque, bipinnatifidis; pinnulis ca. 12—15-jugis, patentibus, sessilibus, approximatis, mediis longioribus, ca. 1 cm longis, 4—5 mm latis, e basi deltoideo-oblongis, apice obtusis et acute dentatis, secus costam ala angustissima confluentibus, basi rotundo-truncatis, aequalibus, pinnulis basalibus multo brevioribus, ca. 3—4 mm longis, ovato-deltoideis, omnibus profunde incisis; segmentis in pinnulis medialibus 5—6-jugis, obliquis, approximatis, fere rectangularibus, ca. 2—2.5 mm longis, 1.2 mm latis, apice obtusis et acute dentatis. Nervis in segmentis 2—3-jugis, subtus fere perspicuis, simplicibus, obliquis in dentes intransibilibus. Pagina frondis textura herbacea, in sicco virescente, utrinque glaberrima. Soris parvis, globosis, uno pro segmento, vel 4—5-jugis pro pinnula; indusiis minutis, pallidis, fugaceis.

**Tibet austr.:** Yatung Hsien, C. W. Chang (張經緯) 1116 (Typus), by stream side under forest, alt. 3000 m, 24, VII, 1960.

Ex affinitate *P. repentis* Ching, a qua specie differt stipite quam lamina multo longiore, pinnis basalibus haud abbreviatis, sed sequentibus aequilongis, inferioribus basin versus paulo angustatis.

本种形体颇近长根假冷蕨(*Pseudocystopteris repens* Ching),但叶柄和叶片均较长,基部的羽片不缩短。

### 中国假冷蕨 新种

***Pseudocystopteris sinica* Ching, sp. nov.**

Rhizomate late repente, vix 2 mm diametro, nigrescenti, ad apicem squamis brunneis, late lanceolatis, acuminatis, diaphanis appresse tecto. Frondibus inter se magis remotis, stipite tenui, 12—14 cm longo, 1.5 mm diametro, stramineo, basi sparse paleaceo, sursum glabro; lamina ovata vel ovato-oblonga, 15—22 cm longa, 8—12 cm medio lata, acuminata, tripinnata; pinnis ca. 12-jugis, subalternis, oblique patentibus, petiolatis, 2.5—3 cm inter se remotis, basalibus non abbreviatis vel potius quam sequentibus longioribus, 7—10 cm longis, 2.5—3 cm latis, lanceolatis, acuminatis, basi rotundo-truncatis, bipinnatis; pinnulis ca. 12-jugis, alternis, petiolulatis, patentibus, mediis 1.2—1.5 cm longis, basi 6—8 mm latis (basalibus minoribus), oblongis, acutis vel obtusiusculis, basi inaequalibus, antice auctis, postice oblique abscissis, spatio 3 mm lato separatis, profunde ad costulam pinnatis; pinnulis ultimis 4—5-jugis, oblongis, obtusis, 3—4 mm longis, ca. 2 mm latis (basali anteriore majore), obliquis, basi decurrentibus, apice et margine laterali serratis, dentibus sat longis, acutis patentibusque. Venis obscuris, in pinnula ultima pinnatis, venulis in dentes intransibilibus. Pagina frondis textura herbacea, in sicco flavo-virescente, utrinque glaberrima. Soris parvis, globosis, brunneis, uno pro pinnula vel 2—3 in pin-

nula basali anteriore; indusiis parvis, subnephrodioideis, demum evanescentibus.

**Yunnan bor.-occid.:** Chung-tien Hsien, Tehgoh, T. T. Yü (俞德浚) 12379 (Typus), in forest, alt. 3400 m, 23, VII, 1937. **Szechuan occid.:** Sacred Mt. Kar-war-kar-boo, Tsa-wa-rung, C. W. Wang (王启元) 66268, under forest, alt. 3400 m, IX, 1935.

Species e grege *P. schizochlamydis* Ching, a qua specie differt statu majore, pinnis oblique patentibus, angustioribus acuminatisque, pinnulis minus profunde pinnatifidis, dentibus brevioribus.

本种与睫毛盖假冷蕨(*Pseudocystopteris schizochlamys* Ching)靠近,但形体较大,羽片斜展,具狭渐尖头。

**兰坪假冷蕨 新种**

***Pseucystopteris lanpingensis* Ching, sp. nov.**

Rhizomate late repente. Frondibus distantibus, stipite usque ad 20 cm longo, basi 2 mm diametro, nigrescenti et paleaceo, paleis magnis, brunneis, ovatis, acuminatis, integris vestito, sursum glabro et stramineo; lamina oblonga, acuminata, 18—25 cm longa, 8—12 cm lata, quadripinnatifida; pinnis ca. 12-jugis, alternis, valde obliquis, imbricatim confertis, breve petiolatis, 3—4 cm inter se remotis, basalibus non abbreviatis, 8—9 cm longis, 3—3.5 cm medio latis, oblongo-lanceolatis, acuminatis, basin versus aliquantulum angustatis, tripinnatifidis; pinnulis I. Ord. 10—12-jugis, petiolulatis, patentibus, oblongis, obtusis vel acutis, mediis 1.5—2 cm longis, 1—1.3 cm latis, bipinnatifidis; pinnulis II. Ord. 5—6-jugis, obliquis, oblongis, basi subaequaliter cuneatis, sessilibus sed non decurrentibus, lobulatis; lobulis ultimis oblongis, utroque 2—3, 2—3 mm longis, ca. 1.4 mm latis, apice acute serratis, dentibus paucis, deltoideis, acutis. Nervis tenuibus, in lobulis majoribus pinnatis, in minoribus furcatis vel simplicibus, apicem dentium attingentibus. Pagina frondis textura herbacea, in sicco flavo-virescente, utrinque glaberrima. Soris parvis, globosis, uno pro lobulo, ad sinum sitis, vel 4—5 pro pinnula ultima; indusiis parvis, brunneis, subnephrodioideis, demum evandis.

**Yunnan occid.:** Lan-ping Hsien, on the River Mekong, H. T. Tsai (蔡希陶) 53754 (Typus), by stream side under forest, alt. 3000 m, 17, VIII, 1933.

Ex affinitate *P. sinicae* Ching, a qua differt statu multo majore, fronde quadripinnatifida, pinnulis I. Ord. distincte petiolulatis, pinnulis II. Ord. inter se liberis, basi ad costulas non decurrentibus.

本种近于中国假冷蕨(*Pseudocystopteris sinica* Ching),但叶片较大,四回羽裂。

**横茎假冷蕨 新种**

***Pseudocystopteris laterepens* Ching, sp. nov.**

Rhizomate late repente, ca. 4 mm diametro, nigrescenti, paleis praesertim ad apicem brunneis, magnis, late lanceolatis, integris, adpressis dense oblecto. Frondibus distantibus, stipite ca. 15 cm longo, basi 3 mm diametro, atro-brunneo paleaceoque, sursum glabra; lamina ad 25 cm longa, 15—18 cm lata, ovato-oblonga, acuminata, basi rotundata, tripinnata; pinnis ca. 14-jugis, breve petiolatis, oblique patentibus, subalternis, 4 cm inter

se remotis, basalibus haud abbreviatis, ad 10 cm longis, 3 cm medio latis, oblongo-lanceolatis, acuminatis, basi rotundo-cuneatis, bipinnatis; pinnulis ca. 14-jugis, petiolulatis, obliquis, oblongo-lanceolatis, acuminatis, basi rotundatis, aequilateralibus, mediis majoribus, ad 2 cm longis, 8 mm latis, obliquis, obtusis, ad costulam ala angusta decurrentibus, margine grosse serratis, dentibus deltoideis, acutis, patentibus. Venis in pinnulis ultimis pinnatis, simplicibus, in dentes intransibiles, subtus solum notatis. Pagina frondis textura crasse herbacea, in sicco flavescente, ubique glaberrima. Soris globosis, magiusculis, 2—3 utroque costulae latere; indusiis magnis, brunneis, membranaceis, nephrodioideis, persistentibus.

**Yunnan bor.-occid.:** Atuntze, Pai-ma Shan, C. W. Wang (王启元) 69799 (Typus), under forest, alt. 3000 m, IX, 1935.

Ex affinitate *P. sinicae* Ching, a qua differt statu robustiore, textura frondis duriore, pinnulis basi aequilateralibus rotundatisque, segmentis ultimis margine dentibus latoribus brevioribusque donatis.

本种甚近中国假冷蕨(*Pseudocystopteris sinica* Ching), 但体态较粗壮, 叶组织较硬。

**阿墩子假冷蕨 新种**

***Pseudocystopteris atuntzeensis* Ching, sp. nov.**

Rhizomate latissime repente, ca. 2 mm diametro, nigrescenti et dense paleaceo. Fronde solitaria, stipite gracillimo, ad 15 cm longo, vix 2 mm diametro, pallide stramineo, ad basin squamis brunneis, magnis, ovato-oblongis, acuminatis, integris sat dense onusto, sursum glabro; lamina 15—22 cm longa et basi lata, vel paulo angustiore, ovata vel deltoideo-ovata, acuminata, basi rotundo-cuneata, quadripinnatifida; pinnis ca. 8—10-jugis infra apicem frondis pinnatifidum, alternis, 3 cm inter se remotis, oblique patentibus, breve petiolatis (petiolo 1.5—3 mm longo), basalibus haud abbreviatis, 7—14 cm longis, 3—4.5 cm medio latis, oblongo-lanceolatis, acuminatis, ad basin rotundo-truncatam aliquantulum angustatis, tripinnatifidis; pinnulis I. Ord. ca. 9-jugis, alternis, inter se magis remotis, fere recte patentibus, mediis 1.5—2.5 cm longis, 7—12 mm latis, oblongis, acutis, petiolulatis, basalibus brevioribus, bipinnatifidis; pinnulis II. Ord. ca. 5-jugis, 4—7 mm longis, 2—3 mm latis, anguste oblongis, obliquis, basin versus subcuneatis, inter se valde remotis, ad costulam anguste alatum adnatis, margine profunde inciso-lobatis; lobulis ultimis utroque 2—3, linearibus, 1—2 mm longis, apice 2—3-dentatis, dentibus sat longis, aristato-acutis patentibusque. Nervis tenuissimis luce transiente solum visibilibus, in lobulis 2—3-furcatis et in dentes intransibiles. Pagina frondis textura flaccide herbacea vel submembranacea, in sicco laete viridi, utrinque glaberrima. Soris parvis, globosis, uno pro lobulo et in basi anteriore ad sinum sitis; indusiis parvis, subnephrodioideis, brunneis, persistentibus.

**Yunnan bor.-occid.:** Atuntze, Pai-ma Shan, Tschunung, T. T. Yü (俞德浚) 9527 (Typus), on grass slope, alt. 3650 m, 11, VIII, 1937.

Ex affinitate *P. schizochlamydis* Ching, a qua differt statu multo majore, lamina

frondis late deltoideo-ovata, abunde tripinnata, pinnulis I. et II. Ord. inter se liberis, basi haud vel vix in alas decurrentibus.

本种与睫毛盖假冷蕨 (*Pseudocystopteris schizochlamys* Ching) 颇近, 但体形很大, 叶片为宽三角状卵形。

### 城口假冷蕨 新种

***Pseudocystopteris remota*** Ching, sp. nov.

Rhizomate late repente, ca. 4 mm diametro, apice squamis brunneis, magnis, diaphanis, ovato-lanceolatis appresse obtecto. Frondibus distantibus, stipite ad 32 cm longo, basi 4 mm crasso, sat dense paleaceo, sursum subglabro; lamina 20 cm longa, basi fere aequilata, apice acuminata, tripinnatifida vel subtripinnata; pinnis ca. 10-jugis infra apicem frondis pinnatifidum, obliquis, subalternis, 4—5 cm inter se remotis, breve petiolatis, basalibus quam sequentibus longioribus, usque ad 12 cm longis, 2.5 cm medio latis, lineari-lanceolatis, breviter acuminatis, basin versus gradatim angustatis, profunde bipinnatifidis; pinnulis ca. 20-jugis, patentibus, spatio lato separatis, e basi latiore oblongo-lanceolatis, breve acuminatis, basi rotundo-truncatis, aequilateralibus, sessilibusque, pinnulis mediis 1.5—1.7 cm longis, ca. 7 mm latis, inferioribus sensim brevioribus, fere ad costulas pinnatis; segmentis utroque ca. 8, oblongis, pectinato-confertis, patentibus, basalibus ca. 4 mm longis, 2 mm latis, sursum gradatim decrescentibus, marginibus lateralibus crenatis vel subintegris, ad apicem parum serratis. Venis in segmentis 4—5-jugis, obliquis, simplicibus, subtus paulo perspicuis. Pagina frondis textura herbacea, in sicco virescente, rachi costisque paleis minoribus lanceolatis sparsis, aliter ubique glabra. Soris parvis, globosis, creberrimis, 2—3 pro segmento, medialibus, ochraceo-brunneis; indusiis parvis, rotundo-reniformibus, persistentibus.

**Szechuan orient.:** Chen-kou, Pao-an, Ta-lung-tung, *Szechuan Plant Resources Survey* 3833 (Typus), in thickets on northern slope, alt. 2000 m, 12, VII, 1959.

Ex affinitate *P. longipedis* (Christ) Ching, a qua differt statu graciliore, pinnis lateralibus anguste linearibus, inter se magis remotis, pinnulis multo brevioribus, spatio lato separatis.

本种颇似长柄假冷蕨 (*Pseudocystopteris longipes* [Christ] Ching), 但体态较细弱, 侧羽片狭线形。